ABSTRACT

N. Ruth Gaskins Little. EVIDENCE FOR THE VALUE OF THE DrPH IN PUBLIC HEALTH (under the direction of Dr. Cheryl McFadden), Department of Educational Leadership, May 2014.

Both the number of schools of public health and number of DrPH programs have grown by more than 40% since 2000. It has only been since the 1980s that the DrPH degree has been articulated as the highest professional doctorate or clinical practice equivalent degree for the profession of public health. The purpose of this study was to investigate the terminal and graduate degrees of public health leaders as delineated by three distinct categories of deans of schools of public health, state health directors and leaders of national professional public health agencies as well as determine leaders' leaders' perceptions and future demand for the DrPH in public health.

The conceptual framework of this study was based on Clayton Christensen's disruptive innovation theory which posits disruption occurs when new products emergence in the marketplace that displaces the position of established products by capturing a place in the competing marketplace. The participants for study constituted public health leaders in three categories; deans of schools of public health, state health directors and leaders of national public health agencies.

Results reveal the PhD degree was held by more deans of schools of public health (50%) than state health directors (4%) and leaders of national public health organizations (26%). The MD degree, a professional doctorate degree, was held by 47% deans, 64% of state health directors, and 52% leaders of national public health agencies. Leaders in all three categories were 61% male and 34% female; conversely the gender of students enrolled in public health programs is more than 60% female.

Findings of this study suggest the need to address future changes in the gender distribution of future leaders reflective of the diversity of the population obtaining public health degrees. Sixty-four percent of current state health directors had a MD degree; however the number of MD's obtaining public health degrees dropped in half in 2009-2010. This has important consequences for future state health directors trained in the principles of public health. Study findings clearly indicate the DrPH is valued by public health leaders and represents the highest practice degree for the profession of public health practice.

EVIDENCE REGARDING THE VALUE OF THE DrPH IN PUBLIC HEALTH

by N. Ruth Gaskins Little

APPROVED BY:

DIRECTOR OF DISSERTATION:_____
Cheryl McFadden

COMMITTEE MEMBER:_____
Maria Clay

COMMITTEE MEMBER:_____
Phyllis Horns

COMMITTEE MEMBER:_____
Marilyn Sheerer

COMMITTEE MEMBER:_____
Lloyd Novick

CHAIR OF THE DEPARTMENT OF EDUCATIONAL LEADERSHIP:

_____
William Rouse, Jr.

DEAN OF THE GRADUATE SCHOOL:

_____
Paul Gemperline

EVIDENCE FOR THE VALUE OF THE DrPH IN PUBLIC HEALTH

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Presented to

The Faculty of the Department of Educational Leadership

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of the Requirements for the Degree

Doctor of Education

by

N. Ruth Gaskins Little

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DEDICATION

This dissertation is dedicated first to God who without Him, none of this would be possible. In memory of my parents, Raymond and Bea Gaskins who passed away during my doctoral education, thank you for instilling in your children the value of family, work ethic and education; the integrity to do things well and to never ever give up. Most of all, thank you for teaching us “I can do all things through Christ that strengthens us” (Philippians 4:13) and I Corinthians 13 “love never fails.”

I also dedicate this work to my children: Alex, Brittany, Caroline and Noah. May it be a symbol to you to persevere, despite the challenges, to never lose sight of the finish line. This was all for you! I love you forever!

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CHAPTER ONE: INTRODUCTION

Background

This study investigated terminal and graduate (master's) degrees in current public health leaders according to leader type as well as their perceptions and value towards the growing emergence of the Doctorate of Public Health (DrPH) degree exploring academic leaders' perceptions and future demand for the DrPH in public health. This is an extremely timely exploration as health care has become an important issue in American politics, with public health having a critical role in facilitating reductions in our population's incidence of chronic disease through preventative services.

Health care expenditures account for the largest rise in the United States consumer price index (CPI) from 1960-2010 compared to other indicators including housing, clothing and energy. The 2010 CPI was 388.4% compared to 22.3% in 1960. National health care expenditures as a percent of the United States gross national product (GNP) was 17.6% in 2010 compared to 5.2% in 1960 (United States Department of Health & Human Services Centers for Disease Control & Prevention, 2011). Health care costs comprise one quarter of our nation's total annual budget. The health status report card of America demonstrates we are an unhealthy nation. Chronic disease constitutes 83% of Medicaid expenditures in the United States (Partnership for Solutions, 2004). The five chronic diseases (heart disease, stroke, cancer, chronic lower respiratory disease and diabetes) account for 7 of 10 deaths annually in United States. More than 50% of adults over age 65 have diabetes and 66% of Americans are overweight or obese (United States Department of Health & Human Services Centers for Disease Prevention & Control, 2011). By 2030 one in five Americans will be age 65 or older (United States Census Bureau, 2010) making the increasing incidence of chronic disease even more

problematic. Our nation's health is at risk and our capacity to support a disproportionately debilitated population is in peril.

Public Health stands for prevention. It is "the practice of preventing disease and promoting good health within groups of people, from small communities to entire countries" (American Public Health Association, 2012). Public Health is responsible for assuring the services to protect the health of our people including disaster preparedness and response, physical activity and nutrition services, public health nursing, epidemiology, environmental health, health policy and health education (American Public Health Association, 2012). When Hurricane Sandy recently struck the east coast, public health was a first responder to ensure safe drinking water and clean food and air. Public health professionals are prepared to respond to outbreaks and epidemics and to provide mass vaccinations and medication dispensing for entire populations (United States Department of Health & Human Services Centers for Disease Prevention & Control, 2013).

Putting prevention into practice is the heart of The Affordable Care Act. While it has been the topic of contentious debate in the United States, it was upheld by the Supreme Court in 2012 (Rosenthal, 2012). The Affordable Care Act will establish health insurance for more than 30 million Americans. Triple Aim (affordable care, improved health and reducing cost) is the nucleus of the Affordable Care Act (Berwick, Nolan, & Whittington, 2008). The design of triple aim is to reward providers for patient improved care and create disincentives through non-reimbursement for poor patient care management. Public health plays a pivotal role in the Affordable Care Act by ensuring access to care and partnering with providers to promote community wellness. This mammoth undertaking mobilizing our nation to improve wellness and preventing further escalation of disease requires a highly trained and competent public health

workforce. The magnitude of our nation's poor health status and the response needed by the public health workforce makes it imperative that each member, whether Master of Public Health (MPH), PhD, or DrPH have superlative skills for functioning at the highest level of their degree.

Interestingly, while demand for health care workers is increasing in part due to our aging population (Health Resources & Services Administration, 2008), the number of physician graduates annually has experienced only slight growth from more than 16,000 in 1980 to slightly more than 20,000 in 2009 (United States Department of Health & Human Services Centers for Disease Control and Prevention National Center for Health Statistics, 2011). Annual pharmacy graduates rates increased from approximately 7,000 in 1980 to more than 11,000 in 2009 while the number of public health graduates tripled from 3,168 in 1980 to 8,406 in 2009. The number of medical schools in the United States totaled 139 in 1980 compared to 157 in 2009 while the number of pharmacy schools 1980-2009 increased from 72 to 112. During this same period, the number of schools of public health increased from 21 to 40 (United States Department of Health & Human Services Centers for Disease Control and Prevention National Center for Health Statistics, 2011).

Professional Doctorate

New fields of study emerged from America's industrial revolution; new technologies and advances required new skills and knowledge for workforce competency. The percentage of America's population attending college grew as did the demand for faculty instructors (Archbald, 2011). An increasing number of practice disciplines required licensure, leading to specific degrees for their professions. Medicine, dentistry, engineering, nursing, pharmacy, education are examples of disciplines developing professional doctoral degrees (Brown-Bennett, 2008). These degrees are characterized by connecting research to practice; a distinction of

professional doctorates is that the doctoral degree course of study arose out of the workplace and profession itself (Neumann, 2005). The professional doctorate is often called the practitioner degree for a particular profession. Applied knowledge is paramount in the coursework and practicum(s) where students often bring problems from their work environment to be investigated for learning purposes (Archbald, 2011). Professional doctorates make significant contributions to the discipline practice through research and student development and provide students new skills for research and practice applications (Gill & Hoppe, 2009).

An inherent difference with professional doctorates and the doctorate of philosophy is the juncture at which students begin their doctoral course of study. Neither professional work experience nor previous qualifying professional degree is required prior to beginning the doctorate of philosophy course of study. Students enrolling in a professional doctorate course of study bring with them previous experience and education and are seeking to increase their practice and research skills resulting from the professional doctorate degree (Neumann, 2005). The purpose of the professional doctorate is to provide graduates increased knowledge and research skills applied in the practice settings. A more detailed description of professional degrees is discussed in Chapter 2.

Both the (PhD) in Public Health and the (DrPH) degrees are offered at schools of public health. However, it was not until the 1980s that the DrPH was articulated as the clinical equivalent to the medical doctorate degree; more clearly establishing two trajectories for the highest level of public health training, one with a focus on practice and the PhD on scholarly research (Roemer, 1986).

There are 48 colleges/schools of public health in the United States with 17 formed since 2000 (Council on Education for Public Health, 2012). Student enrolment in DrPH programs has

risen by 40% since 2002 (DeClercq, Caldwell, Hobbs, & Guyer, 2008). This dramatic increase in both the number of Schools of Public Health and the explosive enrollment of students pursuing the DrPH raises concerns for the future vitality of the PhD in public health. As DrPH programs grow, how is it distinguished from the PhD in public health? What are the perceptions of and values of the DrPH and PhD in public health by public health leaders of schools of public health, state health directors and directors of governmental and public health professional organizations?

Conceptual Framework

Disruptive innovation theory is used to explain the revolution, not the evolution of change in a competitive environment. Evolutional change is described as incremental, the ongoing process of product improvement. Disruptive innovations are tumultuous and radical, creating new prototypes that cause upheaval to the current status-quo intimidating mainstream organizations (Thomond & Lettice, 2002). Clayton Christensen, who defined disruptive innovation, writes it should not be associated with negative phenomenon nor transcending prior products or markets. The determinant for what qualifies as disruptive innovation is whether it succeeds to achieve a sufficient level of performance as to capture a place within a given market (Christensen, 2006).

Archbald (2011) alludes to disruption innovation theory to explain the emergence of professional doctoral degrees away from the PhD monopoly caused by the industrial revolution. Disruptive innovation theory has been used to explain the creation and market demand for the professional nursing doctorate. The increasing level of professional licensure skills, higher complexity of knowledge required and health care technological advances have created a positive demand for the nursing doctorate to fill distinctive gaps in the health care market while ensuring provider competence (Hathaway, Jacob, Stegbauer, Thompson, & Graff, 2006).

Statement of the Problem

It has only been in the past two decades that the doctorate of public health degree has begun to be viewed as the clinical doctorate for public health; the clinical equivalent to the doctor of medicine and other health science doctorates (Roemer, 1986). The doctorate of public health is maturing; unlike other health sciences clinical degrees, licensure requirements have not been associated with this degree. The contributions DrPH makes to the profession of public health, the role that professionally trained public health practitioners play in improving population health status in the United States, and the skillset the public can confidently be assured of graduates of DrPH programs possess, are the inherent responsibility of the profession and academia.

Public health is of vital importance for ensuring population health; therefore, the scholarly credentials for the profession of public health are equally important as other health science professions. The DrPH represents the advanced practice public health professional. Therefore, public health practitioners should have a specific degree distinction for which the degree represents the profession at the doctoral level (Gebbie, Potter, Quill, & Tilson, 2008) and need to see evidence of its utility in leadership positions. For the DrPH degree to have a substantive chance of competing with or complimenting the traditional PhD in public health there needs to be evidence that the persons holding this degree attain leadership positions and that current leaders' value the degree.

Unfortunately, studies have not been published that delineates the educational degrees in current public health leaders according to leader type as well as their perceptions of and values of the DrPH and PhD degrees. This study seeks to describe the educational degrees of public health leaders and their perceptions and values toward the DrPH in public health degree and in doing so

provide academic leaders, professionals interested in furthering their education at the doctoral level, and the profession itself, with information upon which to make informed decisions. In essence, this study informs the evolution of the DrPH.

Research Design and Questions

This study utilized a mixed method design. Mixed methods research is defined by "combining elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (Johnson, Onwuegbuzie, & Turner, 2007, p.123). This approach permits researchers to collect substantial data and valuable information. By using two methods, the potential for new discovery of information from opposing views increases (Frels & Onwuegbuzie, 2013). Fundamental to mixed methods research is a design increasing efficacy of results by minimizing the opportunity for missing data through using mono-method research (Johnson & Onwuegbuzie, 2004).

Research Questions

R1: How does terminal/graduate(master's) degree(s), university program awarding the terminal and/or graduate degree, year of graduation for terminal/graduate degree and/or other leadership roles prior to current role and career trajectory describe leaders in current role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders?

R2: To what extent does years in current leadership role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders relate to years since terminal degree was awarded, by degree type.

R3: To what extent does years in current leadership role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders relate to years since terminal degree was awarded, by type of leader.

R4: How do public health leaders in the designated roles of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders perceive and value the DrPH and PhD in public health.

Significance of the Study

With the impetus of health care reform and its focus on prevention, the transitions in degree preference needed exploration. By its very nature, a disruptive innovation can cause tensions and change, often accompanied by unintended consequences. However, there was a possibility that the two degrees will not be in competition but in fact, exist collaboratively. This study can help inform leaders making program decisions and students ultimately enrolling in the degree program.

Leaders assisting in developing new degrees will benefit from knowing how the degrees are currently manifested in key leadership positions and how public health leaders perceive and value the DrPH in public health. Informed decision making by these public health academicians influence an array of resources and fundamentally, impact future practice credentials. Likewise, it is essential for students determining which degree tract to select to understand the values and perceptions by public health leaders by terminal degree type. As the need for well -credentialed public health practitioners increases, it is essential that due consideration is given before degree selection is made.

Limitations

Limitations to this study are the finite number of public health leaders involved (Deans, State Health Directors and Public Health Leaders in Government Agencies/Professional Organizations). This by no means comprises the full gamut of possible public health leaders, although these three clusters do account for a significant leadership cohort. Purposive sampling was selected for interviewing four deans, four state health directors and four governmental and professional public health leaders. Results are not generalizable to reflect the values and perceptions of all public health leaders.

Assumptions

This study sought to describe leaders of public health in designated roles of (a) deans, (b) state health directors and (c) governmental and professional associations and was based on a number of assumptions.

Quantitative Methods

1. Deans, state health directors and directors of public health governmental and professional organizations constitute important leadership clusters worthy of exploration and study.
2. Information regarding deans, state health directors and governmental and professional associations is publicly available through website searches or direct contact with associated organizations.
3. There are professional changes occurring within the public health workforce that could benefit from a baseline description of the current status of public health leadership.

4. Health care reform implementation is creating significant changes to the health care system impacting public health workforce demands that alter future leadership trends in public health.

Qualitative Methods

1. Deans, state health directors and directors of public health governmental and professional organizations influence the public health workforce trends.
2. Deans, state health directors and directors of public health governmental and professional organizations have perceptions and values regarding their terminal degree that influences decisions made which might guide public health workforce demands by degree type.
3. Deans, state health directors and directors of public health governmental and professional organizations have career trajectories that are important to explore.
4. Purposive sampling allowed sufficient diversity among the sample population to gather important information that describes deans, state health directors and directors of public health governmental and professional organizations

Definition of Terms

Professional Degree: is defined as a doctoral degree in a specified discipline of higher education closely connected to the practice of the profession (Neumann, 2005).

DrPH: is a doctorate in public health degree in a specified discipline of public health in higher education (American Association of Schools of Public Health, 2012).

PhD: is defined as a doctorate of philosophy in a specified discipline of higher education (Archbald, 2011).

Disruptive innovation: is described as tumultuous and radical, creating new prototypes that cause upheaval to the current status-quo intimidating mainstream organizations (Thomond & Lettice, 2002).

Dean: is defined as the academic leader of schools of public health.

State health director: is defined as the highest public health officer in a state.

Governmental public health agency: is defined as a federal agency having specific responsibility for oversight of a public health discipline.

Professional organization: is defined as a national public health association representing a specific aspect of public health professionals.

Graduate degree: is defined as master's degree.

Summary

Milton Roemer's articulation of the DrPH degree as the highest practitioner degree for public health professionals analogous to the doctor of medicine degree is historically significant for the profession of public health (Roemer, 1986). The number of schools of public health has almost doubled since 2000. As our nation has begun to implement the Affordable Care Act, public health plays a critical role in the reduction and prevention of disease. It is important for current and public health leaders to make knowledgeable decisions on which degree to select, the DrPH or PhD for becoming a future public health leader. This study proposed a mixed method design to describe public health leaders by leader type as well as their perceptions and values of the DrPH and PhD degree in public health using disruptive innovation theory**.**

CHAPTER TWO: REVIEW OF THE LITERATURE

Background

This literature review provides a historical background on professional doctorates and review of two professional doctorate health sciences degrees in the nursing and pharmacy profession. Differences and similarities between the PhD and professional discipline doctorates are examined from the body of literature.

The rationale for selecting nursing and pharmacy professional doctorates for comparison with the doctorate of public health has several purposes. First, all three disciplines are located within the division of health sciences in higher education institutions. Secondly, the Doctor of Pharmacy (PharmD) and Doctor of Nursing Practice (DNP) represents the clinical doctorate degrees of practitioners for the pharmacy and nursing professions (American Association of Colleges of Nursing, 2004; Accreditation Council for Pharmacy Education, 2006) and the DrPH has been articulated as the clinical doctorate of public health (Roemer, 1986). This ensures research parity of the professional doctoral degrees for research purposes. Lastly, disruptive innovation theory has been used to describe the doctorate of nursing practice degree in the published literature as evidenced by the explosive growth in the number of DNP programs, increasing by162 in a five year period between 2006 and 2011 (American Association of Colleges of Nursing, 2011). This dramatic increase stems from the increasing demand for mid-level practitioners coupled with societal and profession driven changes (Rolfe & Davies, 2009).

External pressures from leading public health constituents including the Robert Wood Johnson funded Turning Point Initiative (1997) called for transformational changes in public health funding and for public health workforce development. In response, core public health competencies were developed in 2001 and 2010 with DrPH competencies revised in 2009

(Association for Schools of Public Health, 2009). As part of accreditation, institutions must demonstrate faculty practice experience as proof of practice-based research competencies (Council on Education for Public Health, 2011). This evidentiary requirement promotes practice competency by both graduates and faculty as well.

A search of the literature was performed using the parameters of peer-reviewed journals; published books and limited to the English language. The following key words were used: higher education, PhD, professional doctorate, public health, PharmD, DNP, (Doctorate of Nursing Science (DNSc), Doctor of Science in Nursing (DSN), degree, user, DrPH, and leadership. The following databases were searched using the keywords: Medline via Pubmed, Academic Research Complete, Education Research Complete, PsyINFO, Medline, CINAHL PLUS full text, CINAHL full text, Health Sciences & Nursing Academic Edition, and Nursing & Allied Health Collection. While some articles are dated, due to the sparseness in the public health literature on this topic, they provide valuable information for this research.

Historical Background of the Professional Doctorate

The development of doctoral study programs in the United States was replicated based on the German model for doctoral education dedicated to acquiring new knowledge and making new discoveries. The previous European model of lecture and reading was changed to a classroom style of small discussion groups promoting discourse devoted to development of analytical and critical thinking skills (Wechsler, Goodchild, & Eisenmann, 2007). While the European model of higher education focused on the basic tenets of education, medicine, law and theology, the German model stressed innovation and inquiry for making new discoveries and advances (Archbald, 2011).

The first doctorates (PhD) conferred at Yale University in 1861 symbolized America's independence and fledging status not only as an emerging country but one with a complement system of higher education achieving the highest level of achievement for the practice of research science (Rosenburg, 1961). A sign of a nation's maturity was its ability to educate and develop its own scholars and scientists. The industrial revolutions spurred expansion and universities grew in both the private and public sector (Archbald, 2011).

America embraced the traditional philosophical pillars of higher education building institutions replete with buildings, libraries, laboratories and student housing (Wendler et al, 2010). Young adult students studied under the full-time tutelage of their professor devoting themselves to three years of typical coursework with several additional years for dissertation completion supported by an assistantship or stipend. Completion rate for the traditional PhD comprised five to seven years or more, preparing students to become faculty members in America's growing number of universities (Archbald, 2011).

It was not until the early 20th century that the PhD and Master's degree were distinguished as separate degrees. In 1920, the first professional doctorate degree emerged at Harvard University, the doctorate in education or EdD. Thus began the debate that continues today regarding the stature and rigor between professional doctorate degrees and the PhD (Kot & Hendel, 2012). Higher education has been incongruent in articulating the purpose and qualifications for faculty holding a PhD versus a professional doctorate. On the one hand, experts argue that the PhD and professional doctorates are distinctly different; programs cannot prepare individuals to be both practitioners and researchers (Guthrie, 2009). Conversely, others studying higher education merge PhDs and professional doctorates together into the same classification due to degree symmetry (Hathaway, Jacob, Stegbauer, Thompson & Graff, 2006). Some argue

the professional doctorate is the preference not the alternative to the PhD as the PhD focuses on scholarly research and the professional doctorate prepares individuals for both practice and research skills (Fink, 2006).

The industrialized revolution brought new methods for accomplishing work, new technologies and products for human use and new degrees into higher education. Knowledge no longer evolved from within the university exclusively, technology demanded it respond to external needs. The traditional and nontraditional view of doctoral study "depends on our vantage point in the historical timeline" (Archbald, 2011, p. 10). New degrees including doctoral degrees have been established resultant from new discoveries and new technologies. Examples include doctoral degrees in engineering, dental surgery, psychology and public health (Kot & Hendel, 2012) in addition to degrees in genetics and computer science (Archbald, 2011).

Federal and state governments increased funding to higher education for construction and expansion of institutions for training students with skills to meet workforce demands. Post World War II America saw an explosion of new disciplines with professional licensure requirements and older adults returning to school for acquiring doctoral degrees (Wechsler et al., 2007). Growing division occurred between doctoral courses of study in academic education versus those in professional disciplines. The growth of professional occupations required universities not only to respond to external workforce needs but a significant shift in the academic culture. Professional doctorates required faculty to have discipline specific expertise for training graduates. Qualified faculty must not only have research skills but oftentimes hold licenses in the particular field of study (Archbald, 2011).

The published literature during the 1970s and 1980s well documents research studies investigating the specified curriculum differences, admission requirements and practicum

requirements between the PhD and EdD. The findings consistently articulated significant homology between the two degrees despite the inferior regard held for the EdD over the PhD (Kolbert, Brendel, & Grissard, 1997). Nerad and Cerny (1999) conducted a study of 6,000 PhDs in a range of 10-14 years post-graduation with respondents articulating deficits in professional skills, teaching skills and constrictive research agendas delimiting workforce opportunities.

The EdD was established as a professional doctorate for practitioners. Other professions in the 20th century have followed course including medicine, nursing, pharmacy, dentistry and public health (Cronenwett, Dracup, Grey, McCauley, Meleis, & Salmon, 2011). Radford (2001) writes that standards have been developed for disciplines to ensure competency to practice; it would be unthinkable to permit individuals to practice without ensuring adequate proficiency. Because faculty expertise is specifically linear within the context of their specialized expertise, faculty can be limited in adequately advising students on career opportunities both within the academic and non-academic setting according to a Carnegie Initiative on the Doctorate study undertaken at the University of Kansas PhD in history program. Survey responses from alumni clearly indicated deficits in career advising while faculty expressed confidence in their preparation of PhD students for faculty positions (Colbeck, O'Meara, & Austin, 2008). A diminishing number of PhD graduates are obtaining jobs in academia; therefore, it is imperative students learn skills to prepare them for employment (Neumann & Tan, 2011).

Education and Business Doctoral Degrees

The education discipline perpetuates this ambiguity without delineating higher education faculty hiring preference for PhD versus EdD degrees and associated translation concomitantly to students in career advising. A study surveying both program coordinators and vacancies listed in *The Chronicle of Higher Education* career vacancies over a one-year period 1994-1995 found

no degree preference in a majority of cases. This study had several important findings; while 62% of respondents reported no degree preference, when coordinators specified degree preference, the PhD was preferred over the EdD. It is important to note that approximately half of the coordinators held PhDs. It is distinguishable for coordinators without a PhD, the hiring preference for a PhD was only 6.5% and only 5% of the total respondents stated they would not hire an EdD (Kolbert et al., 1997).

Education as a discipline is transforming from a singular focus on teaching to a culture that encompasses both research and teaching and is now perceived as a bifurcation with expectations for contributions on parallel fronts (Deuchar, 2008). In Kolbert's study at the College of William & Mary, the authors note program coordinators perceptions of degree preference can affect their perception of degree strength as associated with research training skills preferring the PhD over the EdD when the coordinator held a PhD. However program coordinators did not actualize their preferences into hiring decisions. In fact a main conclusion of this study is coordinators decisively articulated what mattered preeminently in the hiring decision was the institution the degree was conferred, not whether the doctoral degree was a PhD or an EdD. The authors encourage institutions to review their doctoral degrees to determine the symbolic significance for each and what they represent to future students (Kolbert et al., 1997). Guthrie (2009) supports Kolbert's writing, stating, "Failure to correct shortcomings of one degree ensures continuance of weaknesses in both" (p. 4).

Tensions also exist in the discipline of business similar to education. An ethnographic qualitative study in higher education investigated the consequence of rapid technological advances and resulting impact on "knowledge economy" distinguishing the intensity of emersion training associated with practice skills (professional doctorate) and those of discovery associated

with research rigor of the PhD (Fink, 2006). Technology has removed higher education isolationism; a consequence of the rapid and global nature of our economy presumes the academy, practice discipline and industry are intricately meshed (Tennant, 2004). The ivory tower concept is no longer viable due to economic and technological advances; doctoral education must be market responsive and flexible. Fink (2006) believes doctoral education must occur at the student's place of work, the new site of learning with higher education the conduit between the worksite and student.

The professional doctorate and PhD differences have been classified on the basis of learning. Gibbons et al. (1994) and his colleagues describe "knowledge" originating from one of two modes including orientation, content, outcomes and process as frames. The orientation of the PhD is micro-focused on processes learned within the traditional university setting while the professional doctorate orientation frame has the student as driving the outcomes working in tandem with experienced practitioners with a broader scope of focus. While "knowledge" is the core of both models; the basis of mode two associated with the professional doctorate is work site application and replication versus mode one associated with the PhD, concentrating on new discovery of knowledge and individual development. The orientation of both models is entirely different: mode two stems from the students' experiences while mode one results from individual students' research (Rolfe & Davies, 2009).

Fink's (2006) ethnography supports Guthrie's (2009) argument that the effect of having both the professional doctorate and PhD reduces the effectiveness of both. He supports Usher's (2002) work that being grounded in a professional doctorate required acquisition of mode one learning before saturation into mode two learning. An important distinguishing characteristic between the professional doctorate and PhD is the intensity of emersion in mode one. Fink

believes future innovations may cause the two separate degrees to merge into one. However, a literature review by Hessels and Lente (2008) provide strong evidence that both degrees have sufficient differences to warrant separate degree preparation and conferment while supporting further substantial research on mode two.

The professional doctorate business degree is different than the PhD. Student interview results from Fink's ethnography reflect the value to students in having both options. Not only are the culminating research products different, the targeted design focuses on different goals and objectives. The professional doctorate is a collaborative community oriented product that may lead to publication. These goals are different than those of the PhD (Fink, 2006). Just as Guthrie (2009) warns against diluting both degrees forcing congruency, a study by Perry and Chavaya (2004) highlights concerns on forcing the professional doctorate to become a mirror image of the PhD and encourages scholars to support the unique differences of both degrees. Fink suggests the litmus test is no different than all the practice disciplines. Distinctions indelibly exist between practice and research that make the merger of roles impossible and even illegal. Perhaps the professional doctorate has not ripened to the point that it is equally understood and respected for both its similar and unique characteristics perpetuating the perceptional preference of the PhD over the professional doctorate (Fink, 2006).

Traditionally, institutions of higher education have been viewed as producers of knowledge, the output or result of their research. Knowledge produced within a discipline of research in the academy is called mode one knowledge. Mode two knowledge results from applying or practicing knowledge with multiple disciplines presenting diverse segments of the community including business and industry (Gibbons et al., 1994). The reciprocal relationship between mode one and mode two is often misunderstood. It is the university that confers the

degree based on the production of knowledge whether it is through the traditional PhD or the professional doctorate. Clear linkage between theory and practice is visible with mode two knowledge production; a key difference is the role of the university in mode one and mode two (Rolfe & Davies, 2009). The university is analogous to a monarchy in mode one and under mode two moves to a partnership rather than a dominant role (Usher, 2002). The acquisition and practice of knowledge in mode two demonstrates how both are extensions rather than discrete entities. The resultant information includes the acquisition and application of knowledge rather than a publication (Rolfe & Davies, 2009).

Universities can be resistant to embracing mode two thinking because it breaks down established traditions and challenges its exclusivity on conferring knowledge. Mode two proposes that knowledge be learned and shared, outside the confines of the university where students apply theory into practice (Gibbons et al., 1994). A consequence of the university loss of exclusive control for research, results in a power shift away from the exclusivity of the academy being the sole proprietor to a position of shared partnership where education becomes both knowledge acquisition and practice skill (Rolfe & Davies, 2009). Innovative opportunities exist within higher education focusing on their strengths and creativity in identifying problems, finding solutions and training a competent workforce to carry out the solutions (Gibbons et al., 1994).

Nursing Discipline Doctoral Degrees

Nursing plays a critical role in our health care delivery system as indicated in the Institute of Medicine's 2010 report making recommendations to increase the number of nurses with doctoral degrees by 100% by 2020. This ambitious goal requires substantial increases in faculty to train doctoral level researchers and practitioners (Institute of Medicine, 2010). Efforts to

expand doctoral education in nursing have been ongoing as demonstrated in the growth of doctoral nursing programs since 1977 (Keithley et al., 2003).

History of Nursing Doctoral Degrees

The first professional doctorate in nursing program was developed at Rush University in 1977 with federal funding supporting development of nursing clinical research training. Rush's new Doctorate of Nursing Science (DNSc) degree developed doctoral level nursing science skills in both clinical competence and research scholarship (Keithley et al., 2003). According to the Association of Colleges of Nursing data, the professional doctorate in nursing science and the nursing PhD grew in parallel until the PhD surged ahead in 2003. Between 2003 and 2008 however, enrollment in the Doctorate of Nursing Practice grew 47-fold with enrollment rising to 3,415 in 2008 from 70 in 2003. This number has almost tripled again with enrollment increasing from 3,415 in 2008 to 8,973 in 2011. Conversely, the PhD in nursing has experienced only incremental growth with enrollment at 3 329 in 2003 growing to 4,907 in 2011 (American Association of Colleges of Nursing, 2011).

While the number of nurses enrolled in doctoral programs has increased at phenomenal rates, growth in the number of professional doctorate nursing programs has equally been impressive. The number of PhD nursing programs during the period 2006-2011 increased from 103 to 126. The number of Doctorate in Nursing Practice programs increased 910% in 2006 from 20 to 182 in 2011. In 2011, 119 of the DNP programs had been accredited by the Commission on Collegiate Nursing Education. Graduation rates are equally impressive; the number of DNP graduates has increased from 15 in 2002 to 1,581 in 2011 (American Association of Colleges of Nursing, 2011). Despite the nursing professional leadership clearly articulating the PhD as the

preeminent nursing degree, in reality the professional doctorate in nursing (DNP) is regarded for both its research and clinical skills training (Keithley et al., 2003).

The disproportionate growth in the nursing professional doctoral programs over the nursing PhD supports Rolfe and Davies (2009) research that DNP enrollment and program growth is in direct response to the profession's unhappiness with the perception of increasing detachment of PhD nurses to practice despite the nursing PhD unusual admission requirement. "The PhD should not have professional requirements for admission," writes Keithley et al. (2003), yet 82% of nursing PhD programs require a nursing license as a perquisite. The significant surge in DNP enrollment is also influenced by the position statement established by the American Association of Colleges of Nursing calling for the advance practice nursing training to be increased from the masters to the doctoral level by 2015 (American Association of Colleges of Nursing, 2013).

Types of Nursing Doctoral Degrees

Nursing professionals continue to view the PhD and DNP degrees differently. Edwardson (2010) writes that the DNP is not intended to prepare nurses in the scholarship of research; rather, the criticality of transference of the nursing innovations is the responsibility of PhD trained nurses. This view is not supported however by the National Institutes of Health and nursing employment arenas. In actuality, there is no preference for one degree over the other; both doctoral programs are viewed as preparing individuals for careers in research (Keithley et al., 2003).

The nursing profession has several venues for professionals to pursue doctoral education. As previously stated, the PhD in nursing is the most prestigious nursing degree (Marion et al., 2003). Professional nursing doctorate programs include the DNS or DNSc, DSN, ND and the

DNP. The DNP is the nursing clinical doctorate degree personifying advance nursing practice representing nursing innovation and commitment to evidence based research and practice demonstrating that doctoral nursing graduates can function as both theorists and practitioners (Rich & Nugent, 2010).

Some universities have conducted studies to determine which professional nursing doctorate to offer. Rush University commissioned a task force to determine which professional doctorate degree best suited their college of nursing. Nine members comprised the task force including current faculty, alumni and college of nursing leadership, university leaders and external consultants. Sixteen professional consultants with substantial expertise in the field were contacted by the dean for interviews. The respondents clearly had differing opinions on the differences between the PhD and the professional nursing doctorate. The majority of responses focused on the nursing PhD, articulating that the PhD prepared nurses to be scientists researching and testing theories with these individuals comprising the nursing faculty. The DNSc degree, according to respondents, was viewed as the practitioner's degree; a clear distinction between the DNSc and PhD degrees. Individuals with a DNSc may be involved in applied research believing a contribution to nursing science is the exclusive responsibility of the PhD (Keithley et al., 2003).

Two-thirds of the consultants interviewed expressed clear opinions that it was more advantageous to offer the professional doctorate than PhD due to the increasing demand and workforce shortage for clinically training nursing doctorates. They recommended against the PhD in favor of retaining the professional nursing doctorate degree to continue building upon the universities historical reputation for clinical practice and applied research. Citing little difference between the two curricula, they supported retention of the professional doctorate nursing degree

because it both prepared graduates as both potential faculty members, clinicians and leadership positions (Keithley et al., 2003).

Reflective of other professional disciplines, evidence demonstrates that while the philosophy of science (PhD) nurse is stated to be the most prestigious in academia, significant numbers of professional doctorate prepared nurses are assuming faculty positions both nationally and internationally (Cronenwett et al., 2011). Increasing job opportunities and demand for doctorate prepared nurses is growing as "best-practice" skills are needed in both industry and academia. Practice, research and consultant nursing positions are in demand in both public and private sector jobs and the universities are important for graduating doctoral prepared nurses (Rolfe & Davies, 2010) to meet the growing demands caused by population aging and & increasing prevalence of chronic disease (Marion et al., 2003).

Growth in Nursing Professional Doctorate Degrees

The Institute of Medicine's report entitled, "Health Professions Education: A Bridge to Quality" called for substantive reform to health care delivery toward a model of "patient centered care" provided by a multi-discipline team of providers (Long, 2003). This report along with a companion report targeting safe work environment for nurses, recognized doctoral level nursing preparation would be paramount for instituting this new patient care design system (Cronenwett et al., 2011). The DNP is strategically aligned to provide critical education, research skills and practice competencies to ensure nurses are able to transverse complex systems within their scope of practice in the wake of health care reform (Edwardson, 2010).

The growing popularity of professional doctorate nursing programs supported by their professional associations provides clear evidence that both the type of faculty who train students and the methods by which students are taught has moved from exclusive to shared power

(Cronenwett et al., 2011). Traditional academicians can respond to colleagues with professional doctorates as inferior deterring internal change or embrace societal needs for new and useful knowledge (Rolfe & Davies, 2009). Critics argue the rapid growth in both enrollment and number of professional doctorate programs in response to the nursing profession's call to increase the advance practice nurse from masters prepared to professional doctorate prepared discredits the professional doctorate profession. They argue the level of knowledge and "rigor" has not changed only the degree trajectory and this diminishes not only the profession of nursing science but others perceptions about professional doctorate programs (Hathaway et al., 2006). Despite these treatises, the professional doctorates are firmly entrenched as satisfying qualifications for faculty positions as well as practice (Rolfe & Davies, 2009).

Doctorate of Pharmacy

The Accreditation Council for Pharmacy Education (ACPE), founded in 1932, established guidelines and recommendations encompassing the pharmacy curriculum as a six year course of study. The pharmacy degree, initially a baccalaureate degree, moved to a professional doctorate degree (PharmD) half a century later in 2000 (Accreditation Council for Pharmacy Education, 2006). The establishment of the PharmD degree increased the length of coursework by one year to include additional residency practicum experience and pharmacology (Kreling et al., 2010). The PharmD increased to a two year post undergraduate education program. Finally by 1997, the 1977 endorsement for a single six year PharmD degree by the American Council on Pharmaceutical Education came to fruition (Accreditation Council for Pharmacy Education, 2006).

Community and academic discourse over transitioning pharmacy education from an undergraduate to professional doctorate caused fierce opposition and debate. Community

individuals perceived pharmacists as community retail pharmacists. The American College of Clinical Pharmacy's (2000) position statement sought presented a clear vision for the pharmacy profession. Pharmacists wanted to be recognized as health professionals who not only dispensed medications but valued for their important clinical and management skills. The pharmacy profession also wanted the public's acceptance and recognition of their important role and expertise in drug therapy management. They understood the opportunities for the pharmacy profession resulting from changes in Medicare legislation for achieving pharmacy provider status which could open doors for insurance third party payments (Murphy et al., 2006).

Unfilled faculty positions in schools of pharmacy are rapidly rising in the United States. According to the American Association of Colleges of Pharmacy, there are currently more than 350 vacant pharmacy faculty positions; PharmD graduates are actively recruited; and the field of pharmacy offers both diversity and wide selection of career choices (American Association of Colleges of Pharmacy, 2012). While PharmDs who have completed residency/fellowships work in academic faculty positions, the highly clinical nature of pharmacy and the extensive demand by industry for PharmD creates significant disincentives away from academia to practice (Hagemeier & Murawski, 2011).

A study conducted at Purdue University utilizing the human capitol theory, performed an economic comparison of the PharmD graduate to the PhD graduate. The study was motivated by the growing shortage of pharmacy faculty, the decreasing number of pharmacy graduate students with a pharmacy degree from universities in the United States and the unique nature of the pharmacy degree. Pharmacy, a special clinical degree like nursing and medicine; requires licensure, individuals without degree and licensure would not be able to practice pharmacy. This

constricts their earning potential and inhibits the study hypothesizes (Hagemeir & Murawski, 2011).

The only similar study was published in 1991 before pharmacy moved its entry level to the single track PharmD degree. At the time the 1991 study was published, pharmacists were licensed with a baccalaureate degree and largely practiced in community pharmacies. PharmD and PhD were optional graduate degrees. This previous study results were revealing, concluding:

> If the rate of return for graduate studies is lower relative to the rate of return on municipal bonds or other investment vehicles, the recent pharmacy-school graduate would be wise to invest the difference between a graduate stipend and his or her market value as a pharmacist in 30-year Treasury bills rather than pursuing postgraduate education. This investment strategy would provide a higher return on investment than a career as a pharmaceutical scientist. (Hartzema & Perfetto, 1991, p. 679)

Hagemeir and Murawski's (2011) study is a retrospective analysis of pharmacy graduates during years 1982-2008 exploring the following factors of time, cost and return on investment to complete a graduate pharmacy degree. Their two hypotheses were, completion of a PhD in pharmacy is a profitable return on investment compared to lifetime earnings salary lost by having the PharmD rather than a PharmD/PhD degree and secondly, PharmD graduates pursue PhD degrees purely for nonfinancial rewards (Hagemeir & Murawski, 2011).

Study results replicate Hartzema and Perfetto's findings twenty years earlier. Hagemeir and Murawski conclude:

> The results of this study, while perhaps not surprising, quantify the opportunity cost associated with pursuing a graduate degree after earning PharmD degree.

> U.S. pharmacy school graduates who choose to pursue graduate school can expect a much lower return on their investment than if they had invested in a U.S. Treasury bond or the stock market. Thus from an economic standpoint, there is no reason to expect graduates of PharmD programs to consider pursuing the PhD degree. (Hagemeir & Murawski, 2011, p. 6)

The highest salary potential for PharmD/PhD to achieve parity in closing the salary disparity between practicing PharmD pharmacists is securing deanship positions. New PharmD/PhD graduates earn $20,000 less accepting tenure track faculty position than their PharmD new graduate counterparts working in community practice. There is no monetary incentive for PharmDs to earn a PhD (Hagemeir & Murawski, 2011).

A study to investigate the differences between Bachelor of Science (BS) and PharmD graduates to determine how the curriculum training differences affected their practice was conducted in 2010. A review of the literature revealed no studies had been conducted since the new PharmD educational requirement was enacted. The study involved a random sample of 3,000 pharmacists currently licensed who were mailed a letters requesting consent to participate. 2,667 pharmacists consented to participate and were mailed the self-administered questionnaire requesting information on their employment careers and scope of work. Of these, 562 met the criteria for analysis that 60% of respondents had BS in pharmacy degrees, PharmD degrees comprised 30% and pharmacists with BS and PharmD degrees totaled 10% of the total (Kreling et al., 2010).

Three hundred and thirty-six participants held BS degrees; of these, only three had completed either a clinical residency and/or fellowship. More than 75% of those with a BS degree had careers working as community pharmacists while PharmDs worked equally between

hospitals or community settings. Dispensing medication consumed three quarters of time spent in pharmacy practice for both BS and PharmD prepared pharmacists; BS degree pharmacists spent more time than the PharmDs dispensing medications in both the community and hospital practice settings. In the hospital setting a noticeable differential was seen between time spent in non-dispensing for BS versus PharmD prepared pharmacists. Study results show PharmD pharmacists in hospitals spent more time in specialized and advance practice functions related to patient care (Kreling et al., 2010).

Pharmacists with BS degrees returning to school for PharmD degrees enroll in "nontraditional" programs. These programs consist of specific courses and residencies. Practice experience course credit is sometimes given if the pharmacist had substantial experience in advance pharmacy practice such as therapeutic drug management. Previous studies have been done to investigate the job satisfaction of BS and PharmDs graduating from traditional degree programs. A review of the literature found no published studies related to job satisfaction and pharmacy practice comparing BS to nontraditional PharmD graduates. The purpose of this study was to assess the difference between pharmacy practice and job satisfaction between nontraditional PharmD graduates and traditional BS graduates at the University of North Carolina at Chapel Hill (UNC-CH) was the purpose of this study (Joyner, Thomason, & Blalock, 2009).

The study design of this UNC-CH study was accomplished by matching BS graduates by decade of graduation with nontraditional PharmD graduates by same decade. Two hundred ninety-three graduates were selected and mailed surveys soliciting response in three different areas. PharmDs were asked questions on background demographics, practice domain post PharmD graduation and experiences during their nontraditional PharmD education. BS

traditional graduates were also asked questions regarding their background and clinical practice domain in addition to questions about their decision to pursue a PharmD degree. Seventy-three percent of the nontraditional PharmD graduates responded to the survey and 66% of the BS graduates completed and returned the survey instruments. Study analysis was conducted using descriptive statistics (Joyner et al., 2009).

A majority of the BS graduates spent the most amount of time performing medication dispensing functions in community pharmacies. The nontraditional PharmD graduates primarily worked in hospitals, in skilled nursing facilities or in the drug industry performing clinical skills rather than dispensing skills. Comparing responses of the two groups revealed some distinct differences. Institution reputation was an important factor in the decision of the nontraditional PharmDs to return to school whereas time to degree completion and tuition cost were rated as important to the BS graduates (Joyner et al., 2009).

Study results reveal 65% of the BS graduates are employed as community pharmacists compared to less than 9% for PharmD graduates. Graduates with baccalaureate degrees reported spending 60% of their time on average on medication dispensing tasks in relation to nontraditional PharmD graduates who reported spending only 15% time on dispensing. In conclusion, graduates of UNC's nontraditional PharmD program enjoy greater job satisfaction than their BS prepared counterparts and spent more time in providing clinical services rather than dispensing medications (Joyner et al., 2009).

Several areas exist where higher education can foster advances in pharmacy practice. These include performing research and publishing evidence demonstrating the technical skills required to perform clinical pharmacy functions. Secondly through scholarship and education, pharmacy programs can ensure, refine and develop skills and competencies to enhance pharmacy

competencies. Lastly, schools of pharmacy should drive innovation in both research and practice and extend knowledge to students as well as practitioners. One of the greatest challenges in pharmacy practitioners whether PharmD or BS prepared is to develop new methods reducing dispensing time to meet the growing needs and demands of providing patient care services (Kreling et al., 2010).

Doctorate of Public Health

Emerging problems, changes and new technologies precipitates changes for training public students in higher education and providing continuing education to the current public health workforce. Health information, health informatics and social marketing reflect new subject matter and skills to be acquired (Declercq, Caldwell, Hobbs, & Guyer, 2008). Public health employs individuals from other professional disciplines such as nursing, medicine and dentistry; a substantial number of individuals working in the field of public health have not completed degrees in public health. Distinctly different from other health professions, public health does not have a specific educational credential required for all practitioners of public health as other professions have done (Gebbie, Potter, Quill, & Tilson, 2008).

Public health has transitioned from under the umbrella of medicine into a separate and distinct discipline. Like other established disciplines it has a vision statement, set of essential services that delineate its scope of service, code of ethics, credentialing exam and professional competencies. An update to Roemer's (1986) proposal defining fully prepared public health leaders includes both scholarly credentials and specialty training at the doctoral level in public health (Gebbie, Potter, Quill & Tilson., 2008).

A review of schools of public health offering the DrPH degree during the period 1920-1992 reveals there were five institutions offering the DrPH in 1920 increasing to 17 in 1992 (Venezia, 1994). Currently 40 of the 48 schools of public health accredited by CEPH offer DrPH degrees (Council on Education for Public Health, 2012). DrPH student enrollment wavered prior to 2002 but has dramatically increased by more than 40% from 2002-2006 (Declercq, Calwell, Hobbs & Guyer., 2008).

There are distinct demographic differences between students enrolled in DrPH programs versus PhD programs. Part-time enrollment and full-time employment status best describe students in DrPH programs while more PhD students are enrolled as full-time students. Women comprise almost three-fourths of enrollment in both doctoral programs; however, minorities are likely to be enrolled in DrPH programs than a PhD program and foreigners have higher enrollment in PhD programs than DrPH programs (Declercq et al., 2008).

The Council on Education for Public Health requires schools of public health to offer at least three doctoral programs out of the five core public health areas. The five core areas of public health are epidemiology, environmental health, biostatistics, health sciences and social and behavioral sciences (Council on Education for Public Health, 2012). Traditionally, an important outcome of doctoral training is the mentorship that faculty provide preparing students to become the next generation of faculty (Declercq, Caldwell, Hobbs & Guyer., 2008).

Formal public health training programs developed after a uniform curriculum was established for medical schools 100 years ago. The first public health schools were developed at Harvard and John Hopkins in the early 1900s; students often had clinical degrees in medicine (Roemer, 1986). However, this trend has shifted to students without previous clinical training (Gebbie, Rosenstock, & Hernandez, 2003). This affects curriculum decisions driving metrics to

weigh prior experience in public health practice, the type and level of practice to be considered as well as admission criteria for students who are applying directly upon completion of undergraduate degrees compared to those who have been working as members of the public health workforce (Declercq, Caldwell, Hobbs & Guyer., 2008).

In 1986 Roemer provided an extensive rubric for delivering the DrPH at Schools of Public Health. The foundation basis of curriculum design encompassed a core set of coursework for advancing public health knowledge followed by a capacious field practicum linking public health theory with practice. Roemer's study design establishes four domains: health promotion and prevention, population health, health systems management and social analysis. He believed the DrPH was the public health practitioner training equivalent to the doctor of medicine degree and the DrPH curriculum at the time he viewed as flawed in trying to emulate the PhD in public health curriculum. Roemer believed public health was a distinct profession, no different from medicine, nursing and physical therapy and requires licensure for practice just as other clinical medical degrees.

Building upon Roemer's work, Venezia (1994), manager of the Association for Schools of Public Health programs education programs provided an analysis of DrPH programs in the United States. He highlights the University of Albany's School of Public Health curriculum design as one to be replicated by other schools for its preparation for work in public health practice achieved through multiple internships rather than research focus.

Contributions to the practice of public health are the foci of DrPH programs compared to contributions to discipline theory in PhD programs. Analysis skills, primarily assessment and evaluation are critical for DrPH programs. Analysis in PhD programs stress high proficiency in statistical analysis needed in scientific research. Leadership in public health practice settings is a

core component throughout a DrPH course of study; in PhD programs leadership is a methodology. Careers choices for individuals with a DrPH include both public health practice and academic opportunities. Public health PhD programs prepare graduates for careers in research and faculty positions (Calhoun, McElligott, Weist, & Raczynski, 2012).

Schools of public health have been struggling with not only curriculum content and practicum requirements, but also faculty qualifications. Declercq, Caldwell, Hobbs & Guyer (2008) wrote, “the challenge for schools of public health is to seriously address the question of how much of what we offer in a DrPH program is the result of the needs of the field and how much is a repackaging of our research training” (p. 4). These determinants affect the type of dissertation required, the traditional research dissertation or one integrating practice. It also affects hiring decisions of faculty in determining what credentials determine qualifications, how is practice experience and expertise evaluated and weighed in not only the hiring process but also during the evaluation for tenure process (Declercq, Caldwell, Hobbs & Guyer., 2008).

The Centers for Disease Control and Preventions Office of Public Health Practice programs created the National Public Health Leadership Development Network in 1994. The network understood the need to establish clear and distinct standards for ensuring the quality of skills and performance capacity of the public health workforce. There was also recognition that the public health workforce encompasses a variety of degrees, both clinical and non-clinical such that the specific roles and standards for those in public health leadership and in the practice of public health resulting from a focus on competency based pedagogy ensures a workforce whose performance can be readily measured (Wright et al., 2000).

Network members at their annual meeting in 1995 reviewed the literature for determination of existing public health leadership competencies and development of new ones by

identifying leadership characteristics (transformation, trans-organization, team/group dynamics and legislation/politics) and matching with leadership competencies to be achieved. Members formed work groups to establish a framework of leadership competencies derived from their substantial experiential expertise of academic and practice members. The model designed by the national public health leadership network for assuring public health leadership competencies encompassed a total of 80 benchmarks from four main topic areas; core transformational, political, trans-organizational and team building competencies (Wright et al., 2000).

The DrPH degree has been called the "defining characteristic of Schools of Public Health" (Lee, Furner, Yager, & Hoffman, 2009, p. 177). A review of the DrPH curriculum was studied at the Association of Schools of Public Health Associate Deans' Retreat, also in 2003. Prior to the conference, associate deans for academic affairs were surveyed that upon analysis demonstrated the variability in the DrPH degree. This data while unpublished was used as the basis for discussion in the associate deans' breakout sessions at the conference (Lee, Furner, Yager, & Hoffman, 2009).

The associate deans' conclusions from their workgroup sessions demonstrate distinct criteria differences between DrPH students and PhD students. Conclusions from the workgroups found work experience should be weighted heavier as criteria for admission to the DrPH program than for PhD students. Faculty credentials investigating whether faculty without a DrPH should teach DrPH students was questioned, but not resolved. The group's position on doctoral competency is the DrPH represents the advance practice of public health and the PhD represents discovery (Lee, Furner, Yager, & Hoffman, 2009, p. 182).

DrPH curriculum varies amongst schools of public health. Prominent public health academic leaders support uniform consistency of course content to ensure development of

student leadership skills through practicum experiences, concise instruction on socio-ecological models and determinants of health, health policy, population health, epidemiology, biostatistics, environmental health and social behavioral sciences (Gebbie, Potter, Quill & Tilson, 2008). DrPH graduates are the leaders for tomorrow that must lead by addressing societal inequalities while advancing the public's well-being through implementation of programs based on best practice evidence (Calhoun, McElligott, Weist, & Raczynski, 2012).

According to the Association of Schools of Public Health, the DrPH is described as public health's professional doctoral degree (American Association of Schools of Public Health, 2009). Calhoun expressed concern the DrPH is considered in lower standing than the PhD degree in public health by both public health academicians and employers. He asserts the DrPH competencies must clearly convey to professionals and students the skills and knowledge acquired to assure constituents the "doctoral programs in public health can meet the needs of diverse learners, employment requirements and demands in the public health field" (Calhoun, McElligott, Weist & Racnzynski, 2012, p. 22).

The goal of the DrPH core competency model was not designed to be a "prescription" for DrPH education, rather to be a useful utility to ensure all DrPH graduates possess a core body of knowledge that schools can build upon based on their specific focus areas. Enactment of the DrPH core competency model required changes to schools of public health curricula and practices (Association of Schools of Public Health, 2009). A major change required by development of the DrPH competency model was focusing on practice based learning and applying methodologies based on adult learning principles for competency based education. The association of schools of public health understands this will require faculty development to learn

the skills necessary for implementation and evaluation of these new learning methods. Employer input as well as input from students, alumni and preceptors was recognized as vitally important for ensuring future evaluations (Calhoun, McElligott, Weist & Raczynski, 2012).

Aims of the Association of Schools of Public Health in working on core competencies for the DrPH degree was to provide clarity on what distinguishes the DrPH degree from the PhD degree and provide utility to schools of public health in developing their DrPH program within the framework of a core set of skills and knowledge that all DrPH graduates will achieve. Commencing in 2008, a task force comprised of public health faculty and practice leaders convened to begin the task of developing a DrPH core competency model (Association of Schools of Public Health, 2009). The end product was developed with input from a total of 185 professionals working in seven different workgroups of which 33% represented the public health practice community. Seven domains were established, advocacy, communication, community, critical analysis, leadership, management and ethics/professionalism (Calhoun, McElligott, Weist & Raczynski, 2012).

The seven workgroups completed three modified Delphi surveys to narrow the total number of 881 competencies initially presented with an 88% response rate. Co-chairs from each of the seven workgroups worked to synthesize information into a cohesive model his within the established domains. Consensus was reached on a model that establishes leadership at the core of the seven competency domains supported by a subset of 51 core competencies. The draft model was revised in 2009 to include 54 core competencies. The three additional competencies placed additional emphasis on research. The DrPH core competency model was approved by the ASPH board in 2009 (Calhoun, McElligott, Weist & Raczynski, 2012).

Summary of Chapter

As this review of the literature demonstrates, the professional doctorate is a degree that represents both practice and research skills. Professional doctorates in nursing and pharmacy have been studied showing issues of concerns such as degree strength, degree parity with the doctor of philosophy and student concerns for its recognition. Results from these published studies can be informative in the study of the professional doctorate in public health. These studies help us to increase our understanding of questions asked of program planners, academic decision makers and students. Lastly, a thorough review of the DrPH supports the need for the proposed study.

CHAPTER THREE: METHODOLOGY

The purpose of this chapter is to describe the research questions and design, threats to validity, participants, data preparation, and data analysis. This study describes the educational degrees in current public health leaders according to leader type as well as their perceptions of value towards the growing emergence of the DrPH degree and value of the future demand for the DrPH in public health.

Research Questions

R1: How does terminal/graduate(master's) degree(s), university program awarding the terminal/graduate degree, year of graduation for terminal/graduate degree and/or other leadership roles prior to current role and career trajectory describe leaders in current role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders?

R2: To what extent does years in current leadership role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders relate to years since terminal degree was awarded, by degree type.

R3: To what extent does years in current leadership role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders relate to years since terminal degree was awarded, by type of leader.

R4: How do public health leaders in the designated roles of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders perceive and value the DrPH and PhD in public health.

Research Design

Background

A mixed method design was utilized for this study. Mixed methods research, defined as "combining elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration" (Johnson, Onwuegbuzie, & Turner, 2007, p.123) increases opportunities for collecting substantial amounts of data while also fostering discovery of new information from researchers having different views (Frels & Onwuegbuzie, 2013). A mixed methods design can increase the efficacy of results by minimizing the opportunity for missing data through using mono-method research (Johnson & Onwuegbuzie, 2004).

A mixed method design was selected promoting collection of more data derived from varying approaches increasing the potential for validating study results. In this study design, a concurrent triangulation method was used to collect both types of data simultaneously. Interviews were scheduled and conducted with public health leaders in each of the three categories while descriptive statistics were also being compiled containing information for the first three research questions. This technique has proven useful for describing converging and diverging intersections through the lens of the researcher's proposed theory in this case disruptive innovation theory (Creswell, 2009).

Quantitative Methods

The basis of quantitative data collection methods for this study utilized descriptive statistics by performing media and document review. While most of the variables were nominal in nature, interval variables included years of experience in public health and years in current

leadership role. Data results were displayed using frequency percentages. A data collection protocol was utilized to ensure fidelity of results (Creswell, 2009).

Qualitative Methods

As this study sought to understand the rationale for leaders' perception and value of one doctoral degree program over another, qualitative design best addresses the fundamental question of this study. Secondly, qualitative research allowed study in the context of a natural environment. Since the context surrounding the perceived values and perceptions of educational degrees in public health was unclear, interviewing of academic and public health leaders was determined to be the best for obtaining information. Lastly, the resulting information derived from interviewing deans, state health directors and leaders of national public health organizations was theme oriented rather than specific and concrete. Qualitative inquiry is best suited for research where themes are emerging (Creswell, 2012).

The specific tradition within qualitative design used was ethnomethodology/ phenomenology. Ethnomethodology examines the shared patterns of culture groups, their norms, values, beliefs as well as member functionally and behaviors (Robert Wood Johnson Foundation, 2008). Ethnomethodology studies emphasize the how and whys of organizational norms and practices and provide opportunities to study internal and external connectivity between variables driving decisions and responses including their institutional norms, values, practices and communication styles representing valuable aspects of their "culture" (Denzen & Lincoln, 2000). The culture of this study resided in the culture of public health education. This culture has a rich tradition closely associated with medicine at inception; however Milton Roemer's (1986) report in the 1980s articulating the DrPH as the clinical equivalent to the MD degree caused significant disruptions to this culture. New programs and schools/colleges of public health previously

subscribing to this culture have altered that culture through decisions made in the selection of doctoral programs. The incredible growth in the number of schools of public health from 17 schools in 1994 with DrPH programs (Venezia), to 40 in 2013 (Council on Education for Public Health) shifted the culture paradigm. Thus, a qualitative research design using ethnomethodology/phenomenology tradition was best suited to investigate perceptions of values and future directions.

Ethnomethodology shares many characteristics with phenomenology. Important to phenomenology was ascertaining the participant relationship perceptions, and views derived from their own impressions and experiences (Sloan & Bowe, 2013). Moreover, a phenomenological approach afforded the researcher the opportunity to develop a saturated understanding of the data, heightening the researchers understanding of the events being studied. These concepts drove data collection and data analysis.

Threats to Validity

A cohesive and thorough research design directly impacts the quality and fidelity of the study results. Validity ensures the trustworthiness, accuracy of data collected, analyzed and reported. It speaks to the overall credibility of the results to ensure the outcomes are legitimate or valid (Creswell, 2007).

Quantitative Methods

The criticality of accurate data recording was a preeminent focus in collecting data. Curriculum vitae's, resumes, background information and associated materials of deans of schools of public health, state health directors and leaders of national public health agencies was performed via internet searches. Information was copied and compiled into three separate notebooks by category of dean, state health director and national public health leaders. A excel

database containing some information on deans of schools of public health already existed in the department of public health at East Carolina University . This researcher pulled from this data base matching data to curriculum vitae to ensure accuracy of information using a strident study protocol. Two additional databases; one for state health directors and one for leaders of national public health organizations were created containing collected data points. All 50 state health directors plus the District of Columbia were included to reduce/eliminate selection bias.

Qualitative Methods

In qualitative research, study reliability is increased and threats to validity reduced by assuring a detailed and strident research protocol. Specific protocols should allow the study to be replicated by others achieving similar study results (Creswell, 2007). Detailed protocols are critical for also minimizing study error and opportunities for bias. A detailed study protocol was developed and followed assuring the reliability of study findings. Detailed documentation guidelines assured protocol procedures are followed and findings methodically recorded.

Interview questions were vetted by dissertation committee methodologist and this researcher to assure the appropriateness of the interview questions. Additionally, interview questions were vetted to deans of schools of public health who supported the appropriateness of the questions asked. This researcher utilized recorded interviews creating a transcribed synopsis of issues raised. To further strengthen the reliability of data and promote the highest degree of transparency in the research process and data analysis, the dissertation committee methodologist and external auditor independently listened to recorded interviews. This researcher, dissertation methodologist and external auditor independently coded interviews for determining emerging themes. Each theme was color coded and grouped by distinct yet natural associations. This

researcher, dissertation methodologist and external auditor were all in agreement to the themes that emerged. Such approach serves to reduce bias and promote the trustworthiness of the data.

Construct validity addresses the validity of a set of measures and can be achieved by utilizing multiple data sources rather than a single data source (Creswell, 2007). This study reduced threats to validity by increasing the data sources collected including interviews, reviewing documents, reports, websites and having dissertation methodologist review draft study findings.

Participants

Quantitative Methods

The study population comprises three cluster groups of public health leaders. The first cluster constituted the academic leader, deans of the 48 schools/colleges of public health in the United States. Individual state public health directors including the District of Columbia, minus the state of Hawaii with vacancy in the state health director position at the time of the study comprised the second cluster group (n=50) obtained from the Association of Schools and Programs of Public Health website. The third cluster group (n=23) encompasses national public health leadership at government agencies and national public health professional organizations listed in Appendix A.

Qualitative Methods

Qualitative interviews were conducted with four leaders in each of the three clusters (n=12). Interview selection criteria were based on variability in selection considering geographic location degrees, years in public health and years in profession purposively selected. A participant consent form, approved by the East Carolina University Institutional Review Board was explained to participants prior to interview (Appendix B).

Data Preparation

Quantitative Methods

A detail study protocol guided each step of data collection. Quantitative data was compiled into an Excel spreadsheet for descriptive analysis through review of each school of public health, state health directors and public health professional and governmental agency website.

Three notebooks were constructed containing collected data. The first notebook was prepared using individual tabs containing the printed name of each of the 48 schools of public health and behind each tab, the dean's curriculum vitae. A second notebook was compiled with tabs for each of the 50 state health directors with their curriculum vitae. The third notebook consisted of 2 sections; the first containing agency information for each public health government agency and professional organization leader with agency leader curriculum vita. This information was used enter data into an Excel database and coded for descriptive data analysis. Recorded information was double and triple checked for accuracy by researcher.

Qualitative Methods

Interview guides (see Appendix C) were developed to ensure that pertinent issues were addressed in the interviews. Each telephone interview lasted on average approximately 45 minutes. A paid phone recording service, Toll-Free Conference Call service software, was used to record phone interviews. These recordings were downloaded to East Carolina University's server into an encrypted folder on researchers pirate drive. The researcher transcribed key issues from each of the interviews recordings. Two of the 12 interviews were not recorded, one at the request of the interviewee and one due to technical difficulties. The researcher took detailed

notes and made frequent stops to recap recorded information to the respondent to ensure accuracy of content written.

Each interview was assigned a code in range of 0000 to 00012. Interviews and document analysis were stored on the university pirate drive security protected server in a password protected folder. Data collected was maintained in accordance with UNCIRB (see Appendix D).

Data Analysis

Quantitative Methods

Quantitative data collected in Excel software was organized into categories, rows and columns and reviewed redundantly by researcher to ensure accuracy of data reporting. Frequencies were computed for each cluster variable examining the percentage distribution and dispersion of each characteristic variable.

Qualitative Methods

Thematic content analysis was used to process qualitative data analysis in this study. This type of analysis utilizes inductive processes to group free flowing text belonging together into specific themes or meanings (Denzin & Lincoln, 2000). Content analysis describes communication characteristics and elicits word pairing or grouping of taxonomies reflecting the study culture (Creswell, 2007). A significant data source is the interview tapes that delineate the perceptions, behaviors, actions and responses of institutional leadership clusters. In accordance with recommendations of Denzin and Lincoln (2000), raw data was extracted and organized into categories. The researcher, dissertation methodologist and external auditor independently listened to recorded interviews. Each party individually coded interviews according to emerging themes prior to meeting together. Then the three coders met to review results.

Results showed that all three coders identified the same themes in the three interviews showing both iterate agreement of codes and efficacy of listening to the tape without need to transcribe the interview verbatim. The researcher coded all tapes; each coder reviewed and coded half of the tapes thereby assuring that all tapes were reviewed by two coders for determining the relationship between shared codes as well as the depth and direction of the relationships (Creswell, 2012). Development of a conceptual map was the final step for analyzing interviews. Emerging subthemes were grouped according to themes that naturally emerged. All three parties were in agreement to emerging themes.

Assumptions

This study sought to describe leaders of public health in designated roles of (a) deans, (b) state health directors and (c) governmental and professional associations and was based on a number of assumptions.

Quantitative Methods

1. Deans, state health directors and directors of public health governmental and professional organizations constitute important leadership clusters worthy of exploration and study.
2. Information regarding deans, state health directors and governmental and professional associations is publicly available through website searches or direct contact with associated organizations.
3. There are professional changes occurring within the public health workforce that could benefit from a baseline description of the current status of public health leadership.

4. Health care reform will cause disruption in public health workforce demands that may alter future leadership trends in public health.

Qualitative Methods

1. Deans, state health directors and directors of public health governmental and professional organizations influence the public health workforce trends.
2. Deans, state health directors and directors of public health governmental and professional organizations have perceptions and values regarding their terminal degree that influences decisions made which might guide public health workforce demands by degree type.
3. Deans, state health directors and directors of public health governmental and professional organizations have career trajectories that are important to explore.
4. Purposive sampling will allow sufficient diversity among the sample population to gather important information that describes deans, state health directors and directors of public health governmental and professional organizations.

Summary

This study proposed a mixed method quantitative and qualitative research design. Quantitative results were used in describing the types of leaders in each cluster, their graduate and terminal degrees, years in profession and years in position in addition to the institution conferring their terminal degree. Quantitative analysis was performed using descriptive statistical analysis. Qualitatively, the ethnomethodology/phenomenology tradition examined how leaders in each of the three clusters value and perceive the DrPH. Phone interviews were analyzed using thematic content analysis. Interviews were independently coded by the researcher, dissertation

methodologist and external auditor. Natural clusters of themes emerged and developed into a conceptual map with all three coders in agreement to the emerged themes.

CHAPTER FOUR: RESULTS

This chapter provides the results into the following sections: first, the demographic description of study participants; secondly, the analysis of quantitative results by research question; thirdly, results from qualitative research questions; fourthly, summary of findings.

Participant Demographics

A total of 121 participants were included in this study comprising 48 deans of accredited schools of public health in the continental United States, 50 state health directors including the District of Columbia excluding the state of Hawaii with position vacancy and 23 leaders of government and national professional public health organizations. Leaders of national public health organizations totaled n=23. A listing of these organizations is included in Appendix A. The gender breakdown by category is displayed in Table1.

Quantitative Data Analysis

Data was collected by performing web/internet searches, abstracting data from schools of public health, states cabinet/department of public health and national public health agency websites to obtain curriculum vitae's, biographic and related information on public health leaders. Internet searches were conducted to obtain information including LinkedIn, health grades, institution alumni information and online news media to obtain necessary information. Google searches were performed using each individual name's only, then individual name plus one of the following words sequentially (curriculum vitae, education background, education, career, career history, biography, degrees, and licensure). Three separate excel databases' were developed to enter data into prepared categorical fields.

Table 1

Public Health Leadership by Gender

Leadership Role	Male	Female
Deans (n=48)	35 (73%)	13 (27%)
State Health Directors (n=50)	30 (60%)	20 (40%)
Professional leaders (n=23)	14 (61%)	9 (39%)
Totals (n=121)	80 (66%)	41 (34%)

The first research question with seven variables was: how does terminal degrees, graduate (master's) degree, university program awarding the terminal and/or graduate degree, year of graduation for terminal degree, year of graduation for graduate degree, other leadership roles prior to current role and career trajectory describe leaders in current role of (a) deans, (b) state directors of public health, and (c) government and professional agency leaders?

The terminal degrees held by deans of schools of public health, state health directors and leaders of national public health agencies are displayed in Table 2. One hundred percent of deans had terminal degrees. The PhD was the terminal degree held by 50% of deans; 47% with MD degrees; and 6% with DrPH degrees. Sixty-four percent of state health directors held the MD degree as their terminal degree with only 4% possessing a PhD degree and 26% having no terminal degree. Fifty-two percent of leaders of national public health organizations had MD degrees with 26% having a PhD degree and 26% having no terminal degree.

Table 3 summarizes the graduate degrees held by deans, state health directors and leaders of national public health organizations. The MPH degree was held by 56% deans, 40% of state health directors and 39% of national public health agency leaders. Seventeen percent of deans, 40% of state health directors and 35% of national public health agency leaders did not have a graduate (master's) degree.

After careful review and analysis some duplication was found, but not significant clustering of institutions awarding degrees, the third variable. Deans, state health directors and leaders of national public health agencies received their terminal and graduate degrees from a broad range of institutions. Five deans (10%) received their terminal degree from Harvard, four (8%) from UNC, three from John Hopkins (6%), two (4%) each from Columbia, Tulane, University of Wisconsin, University of Minnesota and Columbia. Four state health directors

Table 2

Type of Terminal Degree held by Public Health Leaders

Terminal Degrees	Deans	State Health Directors	Prof PH Agencies
PhD	19(40%)	2(4%)	3(13%)
MD	16(33%)	30(60%)*	9(39%)
DrPH	3(6%)	1(2%)	0
MD, DrPH	1(2%)	0	0
MD, PhD	5(10%)	0	3(13%)
ScD	2(4%)	0	0
DMD	1(2%)	0	0
DrPH, MD, ScD	1(2%)	0	0
MD, JD	0	2(4%)	0
JD	0	1(3%)	1(4%)
No Degree	0	13(26%)	6(26%)

Note: *includes one DO.

Table 3

Composition of Graduate Degrees held by Public Health Leaders

Graduate Degree	Deans	State Health Directors	Prof PH Organ Leaders
MPH Total	27(56%)	20(40%)	9(39%)
-MPH	-18	-17	0
-MPH, MSc	-1	0	0
-MPH, MS	-3	-1	0
-MPH, MBA	-2	0	0
-MPH, MBBCh	-1	0	0
-MSPH	-2	-2	0
MA & MS	9(5MA & 4MS)(22%)	3(1MA & 2MS)(6%)	1(MS 4%)
MBA	0	2(4%)	1(4%)
Other	6(15%)**	3(6%)***	4(17%)****
NGD*	7(17%)	20(40%)	8(35%)

Note. *No Graduate Degree; **(1Med, 1MHS, 1MPP, 1SMCE & 2MSc); ***(1MHA, 1MPA, 1MSN); ****(1MPP, 1MHA, 1MPA, 1MPharm).

graduated from Yale (8%), three (6%) state health directors graduated from John Hopkins University, two (4%) from Indiana University School of Medicine, two (4%) from University of Mississippi School of Medicine, and two (4%) from the University of California at Berkley. National and governmental public health agency leaders receiving their terminal degree from duplicating institutions were Columbia (3, 13%), Harvard (3, 13%) and Yale (2, 9%). Institutions awarding graduate (master's) degrees for deans had no significant clustering; five (12%) had graduate degrees from Harvard, four (10%) from John Hopkins, three each (7%) from Columbia and Tulane; two respectively (5%) from University of California at Berkley, University of Minnesota and University of Michigan. Institutions awarding graduate (master's) degrees for state health directors demonstrated no significant clustering of institutions. Four (8%) state health directors graduated from Yale, four (8%) from John Hopkins, two (5%) from University of California, Berkley; two (5%) from University of Indiana and two (5%) from University of Mississippi. The only reoccurring institutions for leaders of national public health agencies were two (15%) each attended Harvard and Columbia; other institutions were non-duplicating.

The fourth variable (see Table 4), year terminal degree was determined for deans and state health directors but not leaders of national public health agencies based on internet searches. Deans had a total of 54 duplicated variables, nine of which are unknowns. Five deans had multiple terminal degrees with degrees recorded in the decade in which they were awarded. For category, state health directors, 31 of 38 year of terminal degree variables were found with 13 having no terminal degree. One state health director had two terminal degrees with dates recorded for both degrees. Year of terminal degree for leaders of professional and government national public health agencies could be determined for seven of the 17 holding a terminal

Table 4

Decade Terminal Degree Awarded

Years	Dean Terminal Degree	Dean Graduate Degree	SHD Terminal Degree
1960s	1 (2%)	0	0
1970s	12 (22%)	13 (39%)	7 (22%)
1980s	26 (48%)	14 (42%)	11 (35%)
1990s	5 (9%)	6 (9%)	9 (29%)
2000 and up	1 (2%)	0	4 (13%)

degree. Therefore this variable could not be determined for leaders of national public health agencies.

Dates of award for graduate (master's) degrees could be determined for deans (see Table 4) but not for state health directors and leaders of national public health agencies. Dates of award could not be determined for 20 of the 32 state health directors with graduate degrees. Fifteen leaders of national public health agencies had graduate (master's) degrees; of these, five dates were determined when degree was awarded. The variable for year of graduate (master's) degree for state health directors and leaders of national public health agencies could not be determined.

Summary data for year terminal degree and graduate (master's degree) reveals 86% percent of deans obtained their terminal degree in the 1970s and 1980s and 81% of those with graduate degrees obtained their graduate degrees during this same time period. Fifty-four percent of state health directors obtained their terminal degrees during the 1980s and 1990s. The 1980s comprised the largest grouping of dates of terminal degree awarded for both deans and state health directors. The second largest grouping was the 1970s for deans and 1990s for state health directors

Previous positions of leaders, the fifth variable, were divided into two main categories for deans; (1) previous academic positions (77%) inclusive of the following positions (see Table 5); and (2) professional leadership positions (21%). Previous professional leadership positions included a range of positions from Director of the National Center on Birth Defects and Developmental Disabilities at the Centers for Disease Control and Prevention to Assistant Surgeon General. There was one missing variable for previous position of dean (2%).

Previous position held by state health directors was determined for all but three state health directors. Consonant with the wide range of position titles is the previous positions held

Table 5

Previous Academic Positions

Previous Position	Number (n=37)
Chair	11(23%)
Professor	11(23%)
Academic Director/Prof	7(15%)
Acting/Assoc Dean	6(12%)
Interim Vice Provost	1(2%)
Associate Dept Chair/Program Director	1(2%)

by state health directors. The titles of their previous positions clearly indicate the positions encompass leadership. Titles include Director, Bureau of Preventative Medicine, Deputy Commissioner, Chief Medical Officer, Senior Advisor, Branch chief, State Health Director and House of Representative's member. There was only one state health director listing a previous academic appointment as associate professor of medicine. The range of positions was too dispersed to group; however, 98% were in the category of professional (non-academic) leadership with one (2%) in academics.

Previous leadership position was found for 21 of the 23 agency leaders. Professional leadership (Directors, administrators, deputy administrator, assistant administrator, state health official, commissioner of health, assistant commissioner of health, cabinet secretary, governor) was the largest group category with (71%). Previous academic positions included dean, assistant professor and professor for (29%).

The previous leadership positions of deans 77% of the time was associated with previous academic leadership positions. Conversely, 98% of state health directors' previous leadership positions and 71% of national public health leaders came from previous professional leadership positions. Deans and national public health agency leaders previous professional leadership position categories are inversely proportionate; deans' previous academic leadership (77%) and 29% professional; conversely 71% professional and 29% academic for national public health leaders. Clearly state health directors associate with previous professional leadership positions 98% of time.

Years in leadership (see Table 6), correlated to career trajectory was the sixth variable. For deans of school of public health, years in leadership ranged from 13 to 48 years except for

Table 6

Years in Leadership

Years in Leadership	Number of Deans
11-20	4
21-30	18
31-40	21
41-50	4

one individual where could not be determined. The years in leadership clustered across four ranges with no dean having less than 10 years leadership experience.

Years in leadership for the state health directors' category was missing 21 variables therefore this information could not be computed. Years in leadership for leaders of national public health organizational leaders could be determined for only 14 of the total 23 leaders. This variable comprised four range groups; one to ten years (n=1), 11-20 years (n=5), 21-30 years (n=7) and 30+years (n=1). Due to number of missing variables (n=9) and the closeness in variables between ranges, years in leadership can't be determined for leaders of national and governmental public health agencies.

In summary the results for research question 1 reveals: deans of public health can be described as holding a terminal degree; the type of terminal degree is most frequently a PhD or MD degree; 56% hold a MPH with 17% having no graduate degree. Both terminal and graduate degrees were obtained from a broad range of institutions; 86% of deans obtained their terminal degree during the 1970s and 1980s with 59% during the 1980s. More than two-thirds (77%) held an academic leadership position prior to their current deanship position. State health directors are described as 64% with a MD degree and 4% having a PhD degree. Similar to deans' with graduate degrees, 40% of state health directors had a MPH degree, 40% had no graduate degree. In stark contrast to deans who all held a terminal degree, 26% of state health directors did not hold a terminal degree. Deans and state health directors obtained their graduate degrees from a broad range of institutions. Fifty-four percent of state health directors obtained their terminal degrees during the 1980s and 1990s; the 1980s decade was the largest at 30%. Ninety-eight percent of state health director's previous leadership position was in a professional leadership position, not academia, a stark contrast to deans.

The terminal degrees of leaders of national public health agencies can be described as having a MD degree 52% of the time; 26% had no terminal degree and 35% had no graduate degrees. Similar to both deans and state health directors, 39% of leaders of national public health agencies had a MPH degree. Their previous leadership positions were more closely divided than either the deans or state health directors with 43% having previous professional position and 29% having previous academic position with 28% unknown making this variable unable to be determined.

The second research question is: to what extent does years in current leadership role of deans', state health directors, and government/national public health agency leaders relate to years since terminal degree was awarded by degree type. Curriculum vitae's of deans of schools of public health were readily available in most cases. Years' in current role was determined for 46 of the 48 deans with two missing variables; year of terminal degree was unknown for seven deans. State health directors' and professional public health and governmental agency leaders curriculum vitae's or resumes were not able to be derived from web internet searches for the majority of individuals. Data for years in current leadership role was extracted by finding official announcements, brief biographic abstracts, LinkedIn website and health grades website for licensed practitioners.

Years in current leadership role could be determined for all but five of the 50 state health directors derived from media announcements specifying the date of their appointment in many cases. Since internet searches did not yield information on dates degrees were awarded for most state health directors and leaders of public health agencies, years' of leadership since degree was awarded was not determined. Year terminal degree was not determined for seven state health directors; of the 13 state health directors without a terminal degree, the graduate degrees of nine

were unknown and one had only a baccalaureate degree with unknown date of degree. Sixteen of the national public health and governmental public health leaders held a terminal degree; the date of award could not be determined for seven. Due to the number of unknown data points research question two could neither be proven or disproven.

The third research question investigates the extent years in current role relates to year since terminal degree was awarded leader type. Years in current leadership role was determined for deans, state health directors and leaders of national public health agencies by searching the internet using key phrases as described previously. This information is summarized in Table 7.

Deans of schools of public health were almost evenly split between 0-4 years in role and 5-9 years in their role. Conversely, 72% of state health directors had been in their role 0-4 years and the largest grouping for leaders of national public health agencies was 5-9 years at 43%. Seventy-seven percent of deans, seventy-eight percent of state health directors and sixty-five percent of leaders of national public health agencies had been in their current leadership role less than ten years. While the first half of this research question could be determined for deans, state health directors and leaders of national public health agencies, this research question could neither be proven or disproven due to number of missing dates for year terminal degree was awarded for state health directors and leaders of national public health agencies.

Quantitative Summary

Leaders of deans of schools of public health, state health directors and leaders of national public health agencies are 61% male and 34% female. The PhD degree is held by 50% deans, 4% state health directors and 26% leaders of national public health agencies. The MD degree is held by 47% deans, 64% state health directors and 52% leaders of national public health agencies. Leaders received their degree from a broad range of institutions; no significant

Table 7

Years in Current Leadership Role

Years	Deans	State Health Directors	Leaders of National PH Agencies
0-4	20 (42%)	36 (72%)	5 (22%)
5-9	17 (35%)	3 (6%)	10 (43%)
10-14	6 (12%)	2 (4%)	5 (23%)
15-19	1 (2%)	0	2 (9%)
20+	2 (4%)	1 (2%)	0

clustering of specific institutions was found. Year terminal degree was determined for deans and state health directors. The 1980s was the largest grouping for both deans and state health directors; 48% of deans and 39% of state health directors obtained their terminal degrees during this decade. The second highest grouping was the 1970s for deans at 22% and the 1990s for state health directors. The previous position for deans of schools of public health was previous academic positions 77% of the time; 98% of state health directors and 71% of leaders of national public health leaders previous positions derived from professional rather than academic positions.

Years in leadership could not be determined for state health directors and leaders of national public health agencies. The largest grouping of years in leadership for deans was 31-40 years (43%). Years in current leadership role found 42% deans, 72% state health directors had been in their current role 0-4 years. The highest grouping for leaders of national public health agencies was 5-9 years (43%). Research questions two and three could not be proven or disproven due to missing variables.

Qualitative Data Analysis

Informal conversation interviews were held with twelve participants comprising three domains of public health leadership: deans of schools of public health, state health directors and directors of national public health organizations. A thematic content analysis reveals three clusters with subthemes within the clusters. The major clusters are: perception of the degree, the future of the degree, and issues emerging about doctoral degrees in general (see Figure 1).

Theme I: Perception of Degree

Within the theme of perception, several key subthemes emerged. In particular, the data

Themes and Subthemes

I. Perception of Current DrPH Degree
   - A. Valued
   - B. Unique
   - C. Differentiated from the PhD
     1. Focus
     2. Setting
   - D. Leadership
   - E. State of Transition

II. Future of DrPH Degree
   - A. Sustaining the practice degree
   - B. Curriculum Alignment with Core Competencies
   - C. Emphasis on Leadership

III. Perception of a Doctoral Degree
   - A. Door-opener
   - B. Respect & Credibility
   - C. Translational Value
   - D. MPH Enhancement
   - E. Degree Loyalty
   - F. Degree Limitation

Figure 1. Themes and subthemes.

suggested that the DrPH was valued and perceived as unique, different from the PhD, better suited to specific areas, may fit well with leadership, and currently in a state of transition.

Subtheme I-A: Valued. Qualitative data was significant in both what participants said and what was not said. In this instance, the importance lies in what was not said. No participant questioned the worth of the DrPH or the presence of the DrPH alongside the PhD. The value of a DrPH was not in questioned, rather several participants articulated the inherent worth of the DrPH as evidenced by participant 0002 who said "The DrPH is a fantastic degree and I wish I had that.

Subtheme I-B: Unique. In discussing the DrPH, participants often referred to the degree as unique. That is, unlike another degree. Typical of this was the statement that "The DrPH is a unique degree inferring practice level expertise not available with PhD" (participant 0006).

Subtheme I-C: Differentiation of DrPH & PhD. While the PhD and the DrPH may share some common features, participants clearly differentiated the two degrees. Two distinct concepts emerged from the data relative to differentiation. One differentiating concept related to focus (the Dr PH is an applied practice degree and best suited to specific settings); another differentiation concept related to the historical strength of both degrees.

Sub-subtheme I-C-1: Focus. Participants repeatedly described the DrPH as an applied, practice degree. They equally described the PhD as an academic degree, specifically geared towards research. "The DrPH is a unique degree inferring practice level expertise not available with a PhD" (participant 0006). Participant 0011 stated "The PhD trains people to do research at a high level in an academic setting to acquire generalizable knowledge. DrPH covers much of the same intellectual material to take to positions/roles in practice setting. The difference is in application."

More than describing the degree, participants were able to describe the different perspective and nuisances inherent in the type of training for each degree. This indicated members of the public health profession could clearly identify the distinct core knowledge, skills and career trajectories associated with the degrees offered within the profession (Evashwick, Begun, & Finnegan, 2013). Participant 0011 stated "the DrPH degree encompasses commensurate intellectual material as the PhD but focuses on preparing individuals to take roles in the practice setting. What really distinguishes the DrPH from the PhD degree is the training is focused on application."

This focus perception extended to how participants conceptualized utilization of these differences between degrees. The following two quotations illustrated this perception. Participant 0002 stated, "It [DrPH] is a public health specific degree and would be very helpful to me for content expertise." Another participant (0007) responded, "The PhD in public health targets research and I see people pursuing that degree probably stay more in academia and have more time devoted to research."

Sub-subtheme I-C-2: Setting. Participants were equally able to articulate the setting for which the DrPH would be best suited as well as the PhD. "For a commissioner of public health, I think the DrPH is a very important degree because it reflects there has been a commitment to this particular field" (participant 0002). Another perspective within this this theme was evidenced by the following quote from participant 0003, "There are more regional, state and federal level positions for those with DrPH degrees; the DrPH is a practice degree. I don't see many PhD's applying for county health director jobs. PhD's can't teach DrPH students if it represents practice. You have to have practiced to teach it." Likewise participant 0004 stated, "If have a PhD, then probably tenure track and basic science faculty. I think the PhD where concentration is

in a specific defined area in academic setting, teaches students' in that discipline and in conducting research." According to participant 0012, "The DrPH degree prepares individuals who have a career interest to be at the CDC, HRSA, state, city health department, American Cancer Society and other state and national public health organizations. Leadership, policy and management skills are the foci of development as opposed to the PhD programs.

Less clear was the role of the academic role of the DrPH and PhD faculty in teaching DrPh students. This sentiment was well summarized by the following; "the DrPH is a practice degree. I don't see many PhD's applying for county health director jobs. PhD's can't teach DrPH students if it represents practice. You have to have practiced to teach it (participant 0003).

Subtheme I-D: Leadership. An interesting finding was that participants frequently coupled the DrPH with leadership. While not attributing any doctoral degree specifically to leadership abilities (see later themes), the DrPH was mentioned as preparation for leadership skills. "The DrPH would be sufficient preparation for his leadership role if the person completed the DrPH successfully" (participant 0011). Participant 0009 stated the "DrPH focuses on leadership competencies … [the person] can move more quickly through the ranks in public health practice, academia or government positions than someone who hasn't been through [leadership]training. People who have been through a DrPH in leadership on average come out with a higher level of leadership, than a PhD where leadership was not a priority."

Subtheme I-E: State of transition. In the interviews, participants spoke knowledgeably about the history of the DrPH and the current state of transition for the degree. They described this history of the DrPH with terms such as "second class degree" and "lesser degree" attributing some of these issues to faculty's inability to see beyond their own comfort level. Likewise, they described the current transitions as a battleground.

The degree can be "lesser" because another degree is perceived as more important or prestigious. In the interviews, participants felt that the MD degree was a more prestigious degree. Physician participants described the MD degree as the highest degree. Participants with other degrees recounted the historical perceptions of the DrPH in relation to the PhD. "MD confers automatic credibility in virtually any setting, deserved and underserved. The MD degree entitles me to a leadership but not expertise. Many people in public health and out of public health think it does" (participant 0011). According to another participant, "The world views the MD degree as the credible degree when talking about population health. The reality is the MD degree is a very credible degree but doesn't mean as a physician you know public health"(participant 0003).

A perception of a lesser degree could also be attributed to the rigor in which a degree is obtained. "I am motivated by the controversy, by the variety of views on DrPH education and what degree should be. There is poor quality of DrPH education in some settings. Some lack rigor. In some programs, there is little difference between the DrPH and PhD. Some students don't know whether they are enrolled in the DrPH or PhD programs. At other institutions, if you fail the PhD comprehensive exams they give you the DrPH as a consolation prize" (participant 0009).

In addition to perceptions that the DrPH suffers from a historic view of "lesser", participants acknowledge the controversy surrounding the DrPH now. Typical of this sentiment is the following quote:

> "In terms of the value of the DrPH degree and PhD degree, we are at a fork in the road and there is definitely a battle going on. There is a concern and it goes back to respect in the job world. In the marketplace, respect in academic institutions. If

people want to be faculty, there is this perception that PhD is more valuable than DrPH, I think this is academic hazing. I busted through it, therefore, you must come in and do it my way. Lot of discussion, how could we change the DrPH where it won't get the respect of academic institutions. I come down on the side of let's do what is best for public health. Then we have some public relations work to do within the field to make sure the respect is there. I'm not one to shy away from change from what people may think. It is definitely a battle, you replicate yourself, its' all you know. But at some point must ask, what do we need?.....The DrPH is essentially the research degree. Public health should take a step back and ask if DrPH should have a dissertation or a very in-depth project, should it have more of a policy analysis focus? What is a practice degree in public health? Currently there is a battle going on with old school that said thou shall behave like I was and do the heavy research and knowledge creation and newer programs are separating the two out, focusing on a DrPH as a practice degree with a practice focus. I totally support that focus" (participant 0008).

Theme II: Future

Several themes emerged that dealt with the future of the degree. Subthemes emerging from the data reflected participants' interest in sustaining the future of a practice degree. Participants also made recommendations about the future including enhancing the DrPH through greater alignment of curriculum with the core competencies and a greater emphasis of a leadership focus for the DrPH.

Subtheme II-A: Sustaining the practice degree. As before, the absence of text was as significant as the presence of emerging themes. In no interview did the participants recommend

eliminating the DrPH degree or questioned the value of the degree. Instead, participants repeatedly expressed their feelings that the DrPH fulfills an important place in public health practice. “We have a PhD in public health and if you want to do research, have at it. But I think public health needs a doctoral level leadership degree that focuses on applied practice but far applied” (participant 0008). Similarly, another stated, “My hope is that the DrPH is valued for its unique contributions to public health practice and advancing research “(participant 0006). Participant 0004 stated this theme by saying, “I see great value in having a DrPH degree that provides tools and skills that public health practitioners need to effectively lead their organizations.”

Subtheme II-B: Curriculum alignment with core competencies. Another recommendation was greater adherence to the DrPH core competencies. The DrPH core competency model developed by the Association of Schools and Programs for Public Health (ASPPH) DrPH Steering Committee was derived with input from more than 180 members representing practice and academia in seven workgroups resulting in 54 competencies in seven classes. A fundamental tenant of the DrPH competency model was based on the premise that individuals with a DrPH degree were leaders in the field of practice of public health with specialized research skills (Calhoun, McElligott, Weist, & Raczynski, 2012). Participant 0009, in discussing the Association of Schools and Programs for Public Health (ASPPH) core competency model, stated, “the core competency development process for the DrPH competencies started in 2007 and ended up publishing the core competency model in 2009.”

Leadership was one of the seven classification competencies in the DrPH competency model. Many of the participants associated the DrPH with leadership, specifically expert status

in the practice of leadership. This was reflected in the following participant's response, "I think the DrPH is a very unique degree, it infers a specialized level of expertise and knowledge at the practice level not available in PhD curriculum" (participant 0006).

Subtheme II-C: Emphasis on leadership. One recommendation for the DrPH was to reposition the degree as a leadership degree. "I think the DrPH should be a leadership degree" (participant 0012). This leader saw "great value in having a DrPH that provides tools and skills public health practitioners need to effectively lead their organizations" (participant 0004). Another leader stated this theme by saying, "I have been concerned about the fact that many of our state official agencies are lucky if they have people with public health background or credentials. As I look at efforts to link public health with health care delivery, the need is there for sure" (participant 0007).

Participant 0009 articulated the "DrPH focus on leadership competencies and other ones [DrPH concentrations] conforms with the core competency model." This participant suggested that individuals with DrPH in leadership could achieve career advancement more rapidly than someone without leadership training. "People who have been through a DrPH in leadership on average come out with higher level of leadership than a PhD degree where leadership is not a priority."

Theme III: Perception of a Doctoral Degree

The third major theme centered on the universal response amongst participants regarding the importance of having "a" doctoral degree for achieving leadership positions. Subthemes that emerged include the concept of a doctoral degree serving as a door opener, affording respect and credibility, having translational value to other degrees. Another subtheme for those without a

public health doctorate expertise was the role of an MPH. Also emerging from participants was a subtheme of degree loyalty. Lastly, a subtheme of degree limitations was noted.

Subtheme III-A: Door-opener. Without referencing any particular degree as supreme, participants felt that having a doctoral degree was vital. They stated that the doctoral degree often served as a "door opener" to other career options. This view was expressed regardless of the type of terminal degree held by the participant. "I think no matter what degrees you have you use those for doors to be opened" said Participant 0012. The participant also stated, "I think it's been very important just in general having a doctorate, …it opened doors for my federal positions, …without that degree, I wouldn't have been able to start down that [leadership] trajectory or would have been much more difficult" (participant 0002).

Participant 0005 noted the DrPH and PhD was a means to an end stating, "I have a high level of respect for any of these degrees as a root to an end. In my opinion, any of those is capable of getting you to that end by itself. I don't think it has to be that if you have MD you have to have DrPH also. If you have a PhD, not need DrPH. All these degrees give you additional skillset beyond college."

Subtheme III-B: Respect & credibility. Doors are opened because the doctoral degree afforded the holder a measure of respect and credibility. Participant 0008 typified this sentiment: "more than anything, the doctoral degree provides some respect from others in the field." Possessing a doctoral degree demonstrated credibility and knowledge to people ensuring requisite set of technical skills and expertise according to participant 003. This participant noted "any degree offering expertise in population health is valuable."

Subtheme III-C: Translational value. In addition to serving as gateways and sources of respect or credibility, doctoral degrees were viewed as providing important translational content

that cut across disciplines and leadership roles. “What’s important is that you have a terminal degree in public health, that’s important, not the specific degree itself, rather how you use the degree” (participant 0004). Another participant illustrated this theme by stating,

> “I think it’s been very important, just in general having a doctorate…..A lot of what you do (leadership role) is content expertise, but a great deal of what you do is interpersonal, how you interact, how you manage, motivate, inspire people…….One of the best gifts of my degree, a very rigorous program, was being able to think analytically and critically, synthesize large amounts of information” (participant 0002).

Subtheme III-D: MPH enhancement. Being able to translate and transfer expertise from one degree to another does not guarantee expertise. Those participants not holding a public health doctorate stated the MPH degree provided the necessary content and could serve as a pathway to public health leadership positions. “My MPH is in epidemiology, …, there are people with a MPA, that will bring a different lens to this role. And those with health policy. There is absolutely no right pathway to this role, but I do think that those with just a clinical background are often very limited” (participant 0010). Another participant stated, “As a state health director, has the MD/MPH been helpful to achieve my leadership role? Yes, I have found the MPH is a door opener to obtaining public health positions for physicians” (participant 0005).To qualify as a dean of a school of public health, one needs a terminal degree such as a MD, PharmD, DMD degree coupled with a MPH degree, reported participant 0012; “I just don’t think it would happen without an MPH”.

Subtheme III-E: Degree loyalty. The data suggested that participants viewed personal preferences as the primary reason for choosing one degree over another. One participant stated

the decision to be a physician was made in the eighth grade. Another made the decision to attend medical school, when queried as an undergraduate (participant 0003). Two participants selected a social science career trajectory based on their interests in helping individuals and psychosocial problems and needs. Two others chose clinical degrees stemming from job security and liking people.

What was particularly interesting was the loyalty with which participants viewed their doctoral degree. When asked if they would have chosen another, different degree all participants declined to change their original choice showing a very strong loyalty the degree chosen.

> "Primarily, I consider myself to be a physician and public health commissioner as well. In terms of training, process, in my opinion, primary training is in medicine with some additional training in public health. When you go back as a physician and get an MPH, your public health training is just for a year as opposed to seven years total of training for medicine; four for medical school and three for residency training. So in terms of where did you learn more, seven years of medicine, one year in public health, I certainly learned more about the practice of medicine rather than the practice of public health. I consider myself to be a physician with a public health focus; MD with an MPH this is what I consider the combination to be" (participant 0005).

***Subtheme III-F: Degree limitation*.** It should be noted that the participants clearly did not equate success in leadership roles with degree types. Nor did they feel that the doctoral degree was sufficient to perform leadership well, instead acknowledging that there were "multiple pathways" to achieving leadership positions with diverse terminal degrees and experiences. Participant 0001 thought leadership or management was best learned on the job;

learning how to handle personnel situations, motivating employees, getting employees in the right position for their skillset was best learned through on job experience and not taught in classroom.

This is similar to Participant 004 who said:

> "What's important is that you have a terminal degree, in public health that's important not the specific degree itself, rather how use the degree…..my personal opinion is that you have people who are born leaders and people who are not born leaders and I don't think the class is going to necessarily make you one. You learn by doing and get to do when asked and either you step up and illustrate leadership or you don't, for better or for worse. But there are limitations to any degree, even the MD degree."

Another participant (0011) stated, "There is clearly value to the MD degree, providing me a depth of biomedicine and biologic contributions to health of populations. I can't teach research methodology at the doctoral level, but having been trained in a different doctoral level area, medicine, there is a way to bridge my own gaps to find a team to exert a leadership role to supervising educational programs."

Qualitative Summary

Leaders in all three respective categories; deans, state health directors and leaders of national public health agencies placed value on both the DrPH and PhD in public health. Leaders understood the differences between degrees, referring to the DrPH as the "practice" degree and the PhD as the "academic" degree. Many respondents associated the DrPH degree as a "leadership" degree; while also acknowledging issues related to "degree prestige." The MD degree was associated with very high levels of credibility and the PhD was viewed as the most

acceptable academic degree. Variability in different schools of public health requirements for the DrPH degree was acknowledged as well as the current work to standardize the DrPH curriculum to align with the DrPH competencies (ASSPH, 2009).

Participants consistently reported attainment of a doctoral degree as the gateway to their current leadership degree. A specific terminal degree was not articulated and respondents held both professional doctorates (MD, DMD, DrPH) and PhD degrees in various disciplines. The MPH was noted to be of value for those without a terminal degree in public health. Respondents were loyal to the terminal degree they achieved. When asked if other degrees would have been more helpful in achieving their current leadership position, respondents remained loyal to their terminal degree reflecting their views that attainment of their current leadership position could be attained via multiple routes. Coupled with their terminal degree choice, the MPH degree was stated to provide them content expertise in the field of public health facilitating opportunities for their career trajectory.

Public health leaders recognized public health was in a state of transition. In each of the three categories leaders viewed their degrees and current leadership positions separately. Only state health directors reported the statutory requirement in some states to hold a MPH degree. Less clear was the role of academic faculty teaching practice (DrPH) students without practice degrees.

CHAPTER FIVE: DISCUSSION

The DrPH was articulated as the highest clinical (practice) degree for the profession of public health in the 1980's by Milton Roemer (1986). Studies have not been published that provides the evidence for demonstrating the utility of this degree in public health leaders at the professional level. This study investigated the terminal and graduate degrees held by deans of schools of public health, state health directors and leaders of national public health organizations in addition to years in current leadership role, previous roles and their perception and value towards the DrPH and PhD in public health.

The theoretical framework for this study was based on disruptive innovation theory predicating public health leaders' perceptions and values regarding the DrPH and PhD in public health (Christenson, 2006). Predicting disruptive innovation does not mean one product overtakes the other; merely that sufficient forces exist to facilitate change where the new product establishes a market share in a domain previously not occupied (Yu & Hang, 2013). Three of the four research questions were answered using descriptive statistics, the fourth question responses were based on purposive informal interviews of public health leaders across three leadership categories: deans of schools of public health, state health directors and leaders of national public health organizations. In this chapter, the study findings, recommendations for future studies and conclusion are provided.

Summary of Findings

This study results included both quantitative and qualitative findings. Only the first research question was proven quantitatively; question four results were qualitative. One finding of this study was the limitation on the availability of public health leaders resumes and curriculum vita's available from the Internet. While some deans of schools of public health had

curriculum vita's readily available; this was not the case for state health directors, leaders of national public health agencies and some deans of public health.

The findings for research question one revealed public health leaders had a variety of terminal and graduate degrees. The medical doctorate degree was held by leaders in all three categories; almost 45%of deans, 52% of leaders of national public health organizations and 64% of state health directors had a MD degree. This finding is discussed in greater detail with recommendations for future studies.

The Council on Education for Public Health articulates graduate public health degrees encompassing both terminal degrees and master's degrees as either professional or academic**.** Both the DrPH and MPH are considered professional degrees while the PhD is considered an academic degree (CEPH, 2011). Participant 0008 raised concerns regarding the diminished value of the DrPH; however, this was not the case. Instead, leaders clearly and consistently valued the degree, articulated the placement of the degree as a practice and professional degree, and frequently identified the DrPH as a likely vehicle for leadership skill development.

Leaders in all three categories were uniformly able to articulate the difference between the DrPH (a "practice" degree) and the PhD (a "research" degree). Equally significant was the fact that these leaders did not stratify the degree as one being more valuable than the other; merely that the degrees differed in terms of placement in the profession: practice and research. As noted by Calhoun, McElligott, Weiss and Raczynski (2012), the DrPH competencies provide an explicit skillset for the training of public health practitioners. Beyond declaring the DrPH valuable, participants in the study envisioned the DrPH providing students with certain leadership capabilities.

The theory of disruptive innovation posits that technologies (and other innovations) can serve to disrupt the market of competing niches already established (Christenson, 2006). Disruption happens when the new product changes the established product's place in the marketplace (Yu & Hang, 2013). The study suggests there is not likely to be a disruptive displacement of DrPH on the PhD. However, a key finding suggests that instead the DrPH may displace the MPH. Degree loyalty, another important study finding may affect this displacement. Participants, when asked if in retrospect they would have chosen another degree, uniformly defended the choices they had made and showed strong loyalty to the array of terminal degrees each they had selected. This is a critical issue, for embedded in this question is the broader question of where the profession of public health resides.

Evidence regarding concerns about inherent worth or possible duplication of the DrPH and PhD was not found. Instead, results of the study seem to place the burden on academia to actualize the perceptions and expectations of current leaders and the profession for a comprehensive and distinctly different practice degree. With a 40% growth in DrPH programs (DeClercq, Caldwell, Hobbs, & Guyer, 2008), this finding is particularly important when considered in relation to the growth in student enrollment and programs in schools of public health.

The MPH has had a long and distinguished place in the training of public health professionals as evidenced from the 33% increase in master's degrees offered by schools of public health during the period 2000-2009 (ASPH, 2010). Study results found 56% of deans, 40% of state health directors and 39% of leaders of professional public health organizations held a MPH degree. Students' enrolled in MPH programs constitutes more than 50% of master's degrees awarded in public health (ASPH, 2010).

Clearly, the MPH was perceived by participants to serve as a means by which professionals with non-public health terminal degrees (e.g., MD, DDS, PharmD, etc.) learn the principles and practices of public health sufficient to lead or guide public health initiatives. Evidence from the demographics of the study supports this use of the MPH as a supplemental degree conferring on the leader sufficient understanding and standing within the public health community to lead major public health initiatives. Unlike other professions such as nursing and pharmacy, whose leadership has articulated position statements for their practice doctorates, the literature has yet to articulate if the profession of public health at the graduate level serves as an augmentation to other health science professional degrees or if the DrPH represents the practice leaders' profession of public health.

The number of applications to schools of public health has more than doubled from 19,953 in 2000 to 49,217 in 2010. The number of schools of public health has doubled and growth in the number of enrollment is occurring in both masters and terminal degree programs in public health (ASPH, 2010). ASPPH articulates in its report, "Framing the Future, The Second 100 Years of Education for Public Health, states " the need to for the profession of public health to clearly define the public health knowledge, practice skills and values for each degree while also encompassing the totality of the profession of public health" (ASPPH, 2014). This report further recognizes that many public health professionals in the future will work in new arenas outside of government based public health agencies and that many public health faculty lack educational degrees in public health and/or practice experience in public health (ASPPH, 2014).

As with all scholarship endeavors, research findings often uncover unanticipated findings. One such unexpected finding from this study is the present gender distribution within the three sets of public health leaders. Study results reveal the dean leadership group to be 73%

male and 27% female. Similar gender distribution was found for the other two leader groups: state health directors (60%male/40% female) or leaders of national professional public health organizations (65% male/35% female). Conversely, according to ASPPH (2010), student enrollment in schools of public health is 70% female and 30% male while the US population is 49% male and 51% female.

Demographic variables showed that current leadership reflects the gender distribution at the time of their assent. More than 65% of deans of schools of public health began their career trajectory during the 1970s and 1980s and have been in the profession of public health more than 30 years. The context of this study reveals the likelihood the majority of participants in this study were near the end of their careers with time in career was less than 10 years.

Another unexpected study issue relates to the role and credentials of state health directors. The literature suggests (Lee, Furner, Yager, & Hoffman, 2009) and study results confirm the perception that the DrPH can serve to prepare public health leaders as senior level administrators including the state and federal government. The variability in the role of the state health director as demonstrated by the multitude of job titles used to describe the role of state health director makes educating students through a DrPH course of study problematic. This dissertation raises questions worthy of investigation for future studies. These recommendations are discussed in the section below.

Recommendations for Future Studies

Study findings suggest a number of opportunities exist benefited by future studies. These recommendations include distinguishing the role of the MPH degree, articulating the differences between the BS, MPH and DrPH degrees, determining whether the profession of public health is a distinct profession or encompassing many health professions, investigating the degree

credentials needed for the position of state health directors and investigating the gender inequality in public health leaders.

It is unclear if the proper role of the MPH is to serve as a gateway for public health leadership roles because there was not a practice, professional degree that would confer public health content, leadership, and a doctoral standing to a future public health leader. The emergence of the DrPH and the clarity with which the participants place the DrPH as a practice and leadership degree intensifies and makes necessary clarification on these issues.

While ASPPH (2012) has defined the MPH degree for the 21st century, ambiguity remains. For example, this report clearly articulates the need to demonstrate how the MPH degree is different than the BSPH and DrPH; however in the same sentence it is noted that "the DrPH emerges as a high-level degree focused on public health leadership and management (ASPPH, 2014). Further, ASPPH's (2014) report, Framing the Future, The Second 100 Years of Public Health Education notes that a number of health professions have moved to the doctoral level and recommends the profession of public health clearly distinguish the knowledge, practice skills and values for its degrees. Concomitantly, Hovland, Kirkwood, Ward, Osterweis and Silver (2009) noted significant growth in undergraduate public health education programs. Coupled with the growth in DrPH programs (Lee, Furner, Yager, & Hoffman, 2009) and undergraduate public health programs, public health academic leadership may need to decide if the role of the MPH needs to be reexamined.

Variability in the education needed for the position of the state health is unclear. While 64% of state health directors had MD degrees, 36% held other degrees; 26% had only graduate degrees. To allow for greater alignment of practice and education, greater studies need to occur that better define the actual activities, practices, and skills needed to serve in the role of state

health director. Future studies exploring the educational requirements needed for the position of state health directors are important for the profession of public health.

Future studies on this topic should also encompass the role of state health directors who unlike deans of schools of public health who all held terminal degrees, and public health profession leaders who predominantly held graduate degrees at the master's level, the role of state health directors was more variable. There are important research questions to be answered by future studies. The profession of public health must decide if a terminal degree (even the MD degree) is required to function as state health director. Further research is need to investigate why the number of graduates in public health with MD degrees has declined from 12% (1999-2000) to 6% (2009-2010) and to explore if there is a causality between this decline in physician enrollment in public health programs and the changing role and degree requirements needed for public health leadership positions inclusive of state health director positions.

Since 26% of state health directors did not hold a terminal degree, a future study is recommended to ascertain if there is decreased dependence on the MD degree as critical to the state health director role or if a terminal degree is required at all. Additional research should be conducted to examine a reduced dependency on the MD degree and the desire for a strong leadership degree that provides leadership to the role of the state health director. This study raises questions that need to be addressed as the DrPH continues to gain momentum and produce public health graduates capable of assuming greater leadership positions.

Study findings pose a number of questions to be answered; for example: Is public health an umbrella for many professional disciplines and thus any degree suffices for achieving leadership positions? Or has public health become a distinct discipline with a body of knowledge alike but separate from other disciplines and able to be transmitted this body of knowledge

through coursework from undergraduate to graduate studies? Said differently, how does public health incorporate within its professions those that have been trained and socialized into the profession (professional colleagues) and "othering" (likeminded but distinctively different professionals) (Thompson, 2014).

Clarifying the role of the MPH is beyond the scope of this study, but the findings from this study suggest that careful attention needs to be paid to the de-facto leadership function of the MPH. ASPPH (2014) describes the MPH as a degree designed to train individuals to practice public health competently, the PhD designed to emphasize expertise in at least one of the five public health domains, and the DrPH degree as a degree that prepares leaders to practice at the professional level.

Towards that end, future studies should also investigate the impact on the profession of public health. Study results suggest and current enrollment figures supported the premise there are opportunities for and a need to change the gender distribution in the near future as the leadership landscape changes. Questions arise as to how this change will occur and how the profession of public health is actively planning for substantial leadership changes as existing leaders begin to retire. Substantive inquiry needs to occur that investigates what is being done to develop future leaders that reflect the diversity of the population as a whole and the predominantly female profession of public health. Public health advocates are needed to enrich the public health literature regarding impending changes in leadership and the potential for significant gender changes in leadership.

Conclusion

Results of this study did not indicate the DrPH will displace the PhD in public health in the future. Instead study results indicate the need by public health leaders to clearly articulate the

differences with the MPH and DrPH degrees. Public health leadership must decide if the MPH is a “value added” to one’s primary degree or if leaders association of the DrPH degree as the leadership degree render unnecessary and unadvisable non-public health degrees supplemented with some public health coursework as sufficient for leading major public health activities. Further, it is recommended the public health professional organizations clearly distinguish what each degree in the profession represents, the skills and jobs associated with each degree and providing leadership and guidance for resulting changes that need to occur.

Currently the DrPH is gaining momentum as evidenced as increased program enrollment. Public health leaders in this study (deans of schools of public health, state health directors and leaders of national public health organizations) clearly value and differentiate the practice focus of the DrPH degree. However, many questions still have to be answered before programs offering the DrPH can best align curriculum with leadership roles. Nevertheless, the leaders in this study affirmatively answered the value, future, and need for a practice degree in public health.

The value of the degree is apparent in this study. The future of the degree is less evident. The DrPH seems to be a crossroad in terms of evolution and professional adoption. How the DrPH will evolve may rest upon issues of degree displacement, degree loyalty, and professional identity.

REFERENCES

Accreditation Council for Pharmacy Education. (2006). Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. Retrieved from https://www.acpe-accredit.org/pdf/ACPE_Revised_PharmD_Standards_Adopted_Jan152006.pdf

American Association of Colleges of Nursing. (2011). Enrollments and graduations in DNP programs: 2002-2011. Retrieved from http://www.aacn.nche.edu/membership/members-only/presentations/2012/12doctoral/Potempa-Doc-Programs.pdf

American Association of Colleges of Nursing. (2013). AACN position statement on the practice doctorate in nursing. Retrieved from http://www.aacn.nche.edu/media-relations/fact-sheets/DNPFactSheet.pdf

American Association of Colleges of Nursing. (2004). AACN Position Statement on the Practice Doctorate in Nursing. Retrieved from http://www.aacn.nche.edu/publications/position/DNPpositionstatement.pdf

American Association of Colleges of Pharmacy. (2012). Vacant budgeted and lost faculty positions—academic year 2011-12, institutional research brief, 13. Retrieved from http://www.aacp.org/resources/research/institutionalresearch/Documents/IRB%20No%2013%20-%20Faculty%20vacancies.pdf

American College of Clinical Pharmacy. (2000). A vision of pharmacy's future roles, responsibilities, and manpower needs in the United States. *American College of Clinical Pharmacy, 20*(8), 991-1020.

American Public Health Association (2012). Frequently Asked Questions. Retrieved from http://www.asph.org/document.cfm?page=1150#4

American Public Health Association (2012). What is Public Health? Retrieved from http://www.apha.org/NR/rdonlyres/C57478B8-8682-4347-8DDF-A1E24E82B919/0/what_is_PH_May1_Final.pdf

Archbald, D. (2011). The Emergence of the nontraditional doctorate: A historical overview. *New Directions for Adult and Continuing Education*, *129*, 7-19.

Association for Schools & Programs of Public Health. (2014). A Master of Public Health Degree for the 21st Century. Retrieved from http://asph.org/userfiles/MPHPanelReportDRAFT_11-24-13-forNovDecSurvey.pdf

Association for Schools & Programs of Public Health (2014). Public Health Degrees. Retrieved from http://www.asph.org/document.cfm?page=797#PHDegrees

Association of Schools of Public Health. (2012). ASPH Policy Statement, Strengthening the Federal Partnership with Schools of Public Health, p. 1-9. Retrieved from http://www.asph.org/UserFiles/2012-ASPH-PolicyStatment.pdf

Association of Schools & Programs of Public Health (ASPPH) (2012). Framing the future: The second hundred years of education for public health, framing task force assumptions. Retrieved from http://www.asph.org/document.cfm?page=1184

Association of Schools of Public Health. (2010). Annual Data Report 2010. Retrieved from http://www.asph.org/UserFiles/DataReport2010.pdf

Association of Schools of Public Health. (2009). Doctorate of public health core competency model. Retrieved from http://www.asph.org/userfiles/DrPHVersion1.3.pdf

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs, 27*(3), 759-769.

Brown-Benedict, D. J. (2008). The Doctor of Nursing Practice Degrees: Lessons from the history of the professional doctorate in other health disciplines. *Journal of Nursing Education, 47*(10), 448-457

Calhoun, J., McElligott, J., Weist, E., & Raczynski, J. (2012). Core competencies for doctoral education in public health. *American Journal of Public Health, 102*(1), 22-29.

Christensen, C. M. (2006). The ongoing process of building a theory of disruption. *Journal of Innovation Management, 23*(1), 39–55.

Colbeck, C. L., O'Meara, K. A., & Austin, A. E. (2008). *Educating integrated professionals: Theory and practice on preparation for the professoriate.* San Francisco, CA: Jossey-Bass.

Council on Education for Public Health. (2013). Accredited Doctoral Public Health Degree Programs. Retrieved from http://ceph.org/accredited/search/

Council on Education for Public Health. (2012). Accredited schools of public health. Retrieved from http://ceph.org/accredited/

Council on Education for Public Health. (2011). Accreditation criteria for public health programs. Retrieved from http://ceph.org/assets/SPH-Criteria-2011.pdf

Creswell, J. W. (2007). *Qualitative Inquiry & Research Design*. San Francisco, CA: Pearson.

Creswell, J. W. (2009). *Research Design*. San Francisco, CA: Pearson.

Creswell, J. W. (2012). *Educational Research*. San Francisco, CA: Pearson.

Cronenwett, L., Dracup, K., Grey, M., McCauley, L., Meleis A., & Salmon, M. (2011). The doctor of nursing practice: A national workforce perspective. *Nursing Outlook 59*(1), 9-17.

Declercq, E., Caldwell, K., Hobbs, S. H., & Guyer, B. (2008). The changing pattern of doctoral education in public health from 1985 to 2006 and the challenge of doctoral training for practice and leadership. *American Journal of Public Health, 98*(9), 1565–9.

Denzin, N. K., & Lincoln, Y. S. (2000). *Handbook of qualitative research*. London, England: Sage Publications.

Deuchar, R. (2008). Facilitator, director or critical friend?: contradiction and congruence in doctoral supervision styles. *Teaching in Higher Education, 13*(4), 489-500.

Edwardson, S. R. (2010). Doctor of philosophy and doctor of nursing practice as complementary degrees. *Journal of Professional Nursing, 26*(3), 137-140.

Evashwick, C., Begun, J., & Finnegan, J. (2013). Public Health as a distinct profession: Has it Arrived? *Journal of Public Health Management & Practice, 19*(5), 412-419.

Fink, D. (2006). The professional doctorate: Its relativity to the PhD and relevance for the knowledge economy. *International Journal of Doctoral Studies, 1*(1), 35-44.

Frels, R. K., & Onwuegbuzie, A. J. (2013). Administering Quantitative Instruments with Qualitative Interviews: A mixed research approach. *Journal of Counseling and Development, 91*(4), 184-194.

Gebbie, K., Potter, M., Quill, B., & Tilson, H. (2008). Education for the public health profession: A new look at the Roemer proposal. *Public Health Reports, 123*(2), 18-26.

Gebbie, K., Rosenstock, L., & Hernandez, L. M. (2003). Who will keep the public healthy. *Educating public health professionals for the 21st century. Washington: Institute of Medicine*.

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The New Production of Knowledge*. Thousand Oaks, CA: Sage Publications.

Gill, T., Hoppe, U. (2009). The business professional doctorate as an informing channel: A survey and analysis. *Internal Journal of Doctoral Studies, 4,* 27-57.

Guthrie, J. (2009). The case for a modern doctor of education degree. *Peabody Journal of Education 84*(1), 3-8.

Hagemeier, N., & Murawski, M. (2011). Economic analysis of earning a PhD degree after completion of a PharmD degree. *American Journal of Pharmaceutical Education, 75*(1), 15. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3049656&tool=pmcentrez&rendertype=abstract

Hartzeman, A. G., & Perfetto, E. (1991). Pharmaceutical sciences' manpower supply and internal rate of return. *Pharmaceutical Research 8*(6), 676-682

Hathaway, D., Jacob, S., Stegbauer, C., Thompson, C., & Graff, C. (2006). The practice doctorate: Perspectives of early adopters. *Journal of Nursing Education, 45*(12), 487-496.

Health Resource & Services Administration. (2008). The physician workforce: Projections and research into current issues affecting supply and demand. Retrieved http://bhpr.hrsa.gov/healthworkforce/reports/physwfissues.pdf

Hessels, L. K., & Lente, H. V. (2008). Rethinking new knowledge production: A literature review and a research agenda. *Research Policy 37,* 470-460. Retrieved from http://www.ask-force.org/web/Peer-Review/Hessels-Re-thinking-New-Knowledge-Production-2008.pdf

Hovland, K., Kirkwood, B. A., Ward, C., Osterweis, M., & Silver, G. B. (2009). Liberal Education and Public Health: Surveying the Landscape. *Peer Review, 11*(3), 5-8.

Institute of Medicine. (2010). The future of nursing: Leading change, advancing health. Retrieved from http://thefutureofnursing.org/recommendation/detail/recommendation-5

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 2*(1), 112-133.

Joyner, P. U., Thomason, T. E., & Blalock, S. J. (2009). Practice settings, job responsibilities, and job satisfaction of nontraditional PharmD and BS pharmacy graduates. *American Journal of Pharmaceutical Education, 73*(2), 33. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2690895&tool=pmcentrez&rendertype=abstract

Keithley, J. K., Gross, D., Johnson, M. E., McCann, J., Faux, S., Shekleton, M., Horton, B., & Trufant, J. E. (2003). Why Rush will keep the DNSc. *Journal of Professional Nursing, 19*(3), 223-229.

Kolbert, J., Brendel, J., & Gressard, C. (1997). Current perceptions of the doctor of philosophy and doctor of education degrees in counselor education. *Counselor Education and Supervision, 36*(3), 207-215.

Kot, F. C., & Hendel, D. D. (2012). Emergence and growth of professional doctorates in the United States, United Kingdom, Canada and Australia: A comparative analysis. *Studies in Higher Education, 37*(3), 345-364.

Kreling, D., Doucette, W., Chang, E., Gaither, C., Mott, D., & Schommer, J. (2010). Practice characteristics of bachelor of science and doctor of pharmacy degreed pharmacists based on the 2009 National Workforce Survey. *American Journal of Pharmaceutical Education, 74*(9), 1-8.

Lee, J., Furner, S., Yager, J., & Hoffman, D. (2009). A review of the status of the doctor of public health degree and identification of future issues. *Public Health Reports, 124*, 177-183.

Long, K. A. (2003). Institute of Medicine report: Health professions education: A bridge to quality. *Policy Politics Nursing Practice, 4*, 259-262.

Marion, L., Viens, D., O'Sullivan, A. L., Crabtree, K., Fontana, S., & Price, M. M. (2003). The practice doctorate in nursing: Future or fringe? *Topics in Advanced Practice Nursing, 3*(2), 1-8. Retrieved from http://www.medscape.com/viewarticle/453247_print

Murphy, J. E., Nappi, J. M., Bosso, J. A., Saseen, J. J., Hemstreet, B. A., Halloran, M. A., Spinier, S. A., Welty, T. E., Dobesh, P. P., Lingtak-Neander, C., Garvin, C. G., Grunwald, P. E., Kamper, C. A., Sanoski, C. A., & Witkowski, P. L. (2006). American College of Clinical Pharmacy's vision of the future: Postgraduate pharmacy residency training as a prerequisite for direct patient care practice. *Pharmacotherapy*, *26*(5), 722-733.

Nerad, M., & Cerny, J. (1999). Postdoctoral patterns, career advancement, and problems. *Science, 285*(5433), 1533-1535.

Neumman, R. & Tan, K. (2011). From PhD to Initial Employment: The Doctorate in a Knowledge Economy, *Studies in Higher Education,* 36(5), 601-614.

Neumann, R. (2005). Doctoral differences: Professional doctorates and PhDs compared. *Journal of Higher Education Policy and Management, 27*(2), 173-188.

Partnership for Solutions. (2004). Chronic conditions: Making the case for ongoing care. September 2004 Update. Retrieved from http://www.partnershipforsolutions.org/DMS/files/chronicbook2004.pdf

Perry, C., & Cavaya, A. (2004). Australian universities' examination criteria for DBA dissertations. *International Journal of Organizational Behavior, 7*(5), 411-421

Radford, J. (2001). Doctor of what? *Teaching in Higher Education, 6*(4), 526-529.

Rich, K. L., & Nugent, K. E. (2010). A United States perspective on the challenges in nursing education. *Nursing Education Today, 30,* 228-232.

Roemer, M. (1986). The need for professional doctors of public health. *Public Health Reports, 101*(1), 21-29.

Robert Wood Johnson Foundation. (2008). *Qualitative Research Guidelines Project*. Retrieved from http://www.qualres.org/HomePhen-3590.html

Rolfe, G., & Davies, R. (2009). Second generation professional doctorates in nursing. *International Journal of Nursing Studies, 46,* 1265-1273.

Rosenburg, R. (1961). The First American Doctor of Philosophy Degree: A Centennial Salute to Yale, 1861-1961, *The Journal of Higher Education,* 32(7), 387-394.

Rosenthal, A. (2012). Roberts hits the reset button. *New York Times.* Retrieved http://takingnote.blogs.nytimes.com/2012/06/28/roberts-hits-the-reset-button/?_r=0

Sloan, A. & Bowe, B. (2013). Phenomenology and hermeneutic phenomenology: the philosophy, the methodologies, and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity*, 1-13.

Tennant, M. (2004). Doctoring the knowledge worker. *Studies in Continuing Education*, *26*(3), 431-441.

Thomond, P., & Lettice, F. (2002, July). Disruptive Innovation Explored. Presentation at the 9th IPSE International Conference on Concurrent Engineering: Research and Applications.

Thompson, L. (2014). Leaving the stethoscope behind: public health doctors and identity work, *Critical Public Health*, 1-14.

Turning Point. (1997). Turning Point fact sheet. Retrieved from http://www.turningpointprogram.org/Pages/about.html

United States Census Bureau. (2010). The older population in the United States: 2010 to 2050, (May). Retrieved from http://www.census.gov/prod/2010pubs/p25-1138.pdf

United States Department of Health & Human Services Centers for Disease Control & Prevention: National Center for Health Statistics. (2011). Health, United States, 2011. Retrieved from http://www.cdc.gov/nchs/data/hus/hus11.pdf

United States Department of Health & Human Services Centers for Disease Prevention & Control. (2013). Protecting America's Public Health-CDC Works for You 24/7. Retrieved from http://www.cdc.gov/24-7/cdcfastfacts/protect-public-health.html

Usher, R. (2002). A diversity of doctorates: Fitness for the knowledge economy? *Higher Education Research and Development Journal*, *21*(2), 143-154. Retrieved from http://mams.rmit.edu.au/2d09ov1r9xwy.pdf

Venezia, R. (1994). *An analysis of DrPH degree programs in the United States.* Retrieved from http://www.asph.org/userfiles/drphanalysis-venezia.pdf

Wechsler, H. S., Goodchild, L. F., & Eisenmann, L. (Eds.). (2007). *The history of Higher Education* (3rd ed.). Boston, MA: Pearson Custom Pub.

Wendler, C., Bridgeman, B., Cline, F., Millett, C., Rock, J., Bell, N., & McAllister, P. (2010). *The Path Forward: The Future of Graduate Education in the United States*. Princeton, NJ: Educational Testing Service.

Wright, K., Rowitz, L., Merkie, A., Reid, M., Robinson, G., Herzog, B., Weber, D., Carmichael, D., Balderson, T. R., & Baker, E. (2008). Competency development in public health leadership. *American Journal of Public Health, 90*(8), 1202-1207.

Yu, D., & Chang, C. (2010). A reflective review of Disruptive Innovation Theory. *International Journal of Management Reviews, 12*, 435-452.

APPENDIX A: PUBLIC HEALTH GOVERNMENT AND PROFESSIONAL ORGANIZATIONS

Public health government and professional organizations: Center for Disease Control & Prevention (CDC), Department of Health & Human Services (DHHS), Indian Health Service (IHS), Agency for Healthcare Research & Quality (AHRQ), Agency for Toxic Substances and Disease Registry (ATSDR), Centers for Medicare & Medicaid (CMS), Food and Drug Administration (FDA), Environmental Protection Agency (EPA), Occupational Safety & Health Administration (OSHA), Health Resources & Services Administration (HRSA), Substance Abuse and Mental Health Services Administration (SAMSHA), UNITED STATES Public Health Service Commissioned Corps, USDA Office of Public Health and Science, National Office of Public Health Genomics (NOPHG) National Highway Traffic Safety Administration (NHTSA), National Institute of Health (NIH), The Agency for Toxic Substances and Disease Registry (ATSDR).

National public health professional organizations: American Public Health Association (APHA), Association of Prevention Teaching & Research (APTR), Council on Education for Public Health (CEPH) and Association for Schools of Public Health (ASPH), Association of State & Territorial Officials, National Association of City & County Health Officers (NACCHO), National Public Health Foundation.

APPENDIX B: INFORMED CONSENT TO PARTICIPATE IN RESEARCH

East Carolina University

Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

Title of Research Study: Evidence Regarding the Value of the DrPH and PhD in Public Health
Principal Investigator: Ruth Little
Institution/Department or Division: ECU/Health Sciences
Address: 666 Moye Blvd, Mailstop 660, Greenville NC 27834
Telephone #: 252-744-3123

Study Sponsor/Funding Source: College of Education, Higher Education Leadership Doctoral Program/No Funding

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Researchers at East Carolina University (ECU) study problems in society, health problems, environmental problems, behavior problems and the human condition. Our goal is to try to find ways to improve the lives of you and others. To do this, we need the help of volunteers who are willing to take part in research.

Why is this research being done?

The purpose of this research has several objectives. First to describe the previous graduate degrees, university awarding degrees, terminal degree awarded, year of graduate/terminal degree, previous leadership roles, career trajectory and years in current leadership role of a) deans, b) state directors of public health, and c) government and professional agency leaders. Secondly, to access to what extent, if any, years in current leadership role of a) deans, b) state directors of public health, and c) government and professional agency leaders relate to years since terminal degree was awarded, by degree type. Thirdly, to determine to what extent if any, years in current leadership role of a) deans, b) state directors of public health, and c) government and professional agency leaders relate to years since terminal degree was awarded, by type of leader. The fourth and last objective is to describe deans of schools of public health, state health directors and directors of government/professional agencies perception and value of the DrPH degree. The decision to take part in this research is yours to make. By doing this research, we hope to enrich the public health published literature by describing public health leaders' education, experience and value towards the DrPH in public health.

Why am I being invited to take part in this research?

You are being invited to take part in this research because you are a public health leader, either a dean of a school of public health, state health director or director of a public health government/professional organization. If you volunteer to take part in this research, you will be one of about 115people to do so.

Are there reasons I should not take part in this research?

I understand I should not volunteer for this study if:

- I am under 18 years of age

- I am not a public health leader as identified for purposes of this study as either a dean of a school of public health, state health director or director of a public health government/professional organization in the United States.

What other choices do I have if I do not take part in this research?
You can choose not to participate.

Where is the research going to take place and how long will it last?
The research procedures will be conducted at Brody School of Medicine, Department of Public Health at East Carolina University. The total amount of time you will be asked to volunteer for this study is 1-3 hours over the next 60 days.

What will I be asked to do?
You are being asked to do the following:

Step 1: Each participant will be contacted via phone and/or email to obtain a current copy of their curriculum vitae if not readily available from the web.

Step 2: Each participant will be read or emailed the same script explaining study purpose (attached).

Step 3: Each participant is asked to voluntarily participate. Each participant can decline. Additionally participants may agree to participate by providing copy of their curriculum vitae if not readily available on the web and agree/not agree to a phone interview.

Step 4: Four participants from each of the three categories of deans of schools of public health, state health directors' and directors of public health government/professional organizations will be asked to participate in a telephone interview lasting approximately one hour (questions attached). Interviews will be scheduled at participants' earliest convenience. The principle investigator will call participants at the agreed date and time. The interviews will be recorded using phone conferencing software. You are being asked to give your voluntary consent to record the interview for accuracy. Should you agree to participate, the interview will be conducted and interview summaries will be sent to each interviewed participant for verification to ensure content accuracy.

Step 5: It will be thoroughly explained to each participant interviewed, interview summaries will be maintained on ECU's encrypted server to ensure confidentiality. All printed materials will be kept under lock and key in PI's office.

Step 6: None of the information collected is personal health information however all information will be maintained in accordance with institution IRB policies and procedures.

What possible harms or discomforts might I experience if I take part in the research?
It has been determined that the risks associated with this research are no more than what you would experience in everyday life.

What are the possible benefits I may experience from taking part in this research?
We do not know if you will get any benefits by taking part in this study. This research will help us learn more about the education and experience of current public health leaders and their perceptions on the value of the DrPH and PhD degree in public health. There may be no personal benefit from your participation but the information gained by doing this research will add to the public health published literature by describing public health leaders' education, experience and value towards the DrPH in public health.

Will I be paid for taking part in this research?
We will not pay you for the time you volunteer while being in this study

What will it cost me to take part in this research?
It will not cost you any money to be part of the research

Who will know that I took part in this research and learn personal information about me?
To do this research, ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- Any agency of the federal, state, or local government that regulates human research. This includes the Department of Health and Human Services (DHHS), the North Carolina Department of Health, and the Office for Human Research Protections (OHRP)
- The University & Medical Center Institutional Review Board (UMCIRB) and its staff, who have responsibility for overseeing your welfare during this research, and other ECU staff who oversee this research.

How will you keep the information you collect about me secure? How long will you keep it?

Data collected is comprised of the curriculum vitae of each dean, state health directors and national leaders of public health government agencies and professional organizations. Internet searches will be performed and contact made to leaders office to procure information not readily available. Information collected will be constructed into excel database to include the name of each school of public health, location, name, degrees held by each dean, state health director and public health government/professional organization leader in addition to year obtainment of terminal degree, years in profession of public health and years in current position. This information will be extracted from participants' curriculum vitae. As a precaution to preserve study data, hard copy information will be scanned and preserved on the universities encrypted server as well as the excel database.

Telephone interviews will be conducted with four participants in each of the three categories. Follow up telephone interviews may be conducted depending on participant responses and need for clarity**.** A phone conferencing software with capacity to record phone interviews will be utilized for creation of interview scripts. The researcher will compare interview transcripts with phone recordings to ensure transcription accuracy. Participants will be offered the opportunity to review interview themes to ensure accuracy. Each interview will be saved as a Microsoft Word document with individual files transposed to a PDF format to prevent alternation. Recorded interviews will be used for research purposes only. Each institution will have a specific coded file and sub-file name. Data used for research will be de-identified without anyone knowing it is information from a specific participant. Interviews and document analysis will be stored on the university pirate drive security protected server and all files will be password protected on the university server. A second file containing all data will be maintained as a backup encrypted file on the university secured server to preserve study data. Data collected will be maintained in accordance with UMCIRB.

What if I decide I do not want to continue in this research?
If you decide you no longer want to be in this research after it has already started, you may stop at any time. You will not be penalized or criticized for stopping. You will not lose any benefits that you should normally receive.

Who should I contact if I have questions?
The people conducting this study will be available to answer any questions concerning this research, now or in the future. You may contact Ruth Little, Principle Investigator Monday through Friday, 8am to 5pm at 252-744-3123.

If you have questions about your rights as someone taking part in research, you may call the Office for Human Research Integrity (OHRI) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director of the OHRI, at 252-744-1971.

I have decided I want to take part in this research. What should I do now?
The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT) **Signature** **Date**

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above, and answered all of the person's questions about the research.

Person Obtaining Consent (PRINT) **Signature** **Date**

Principal Investigator (PRINT) ***Signature*** ***Date***
(If other than person obtaining informed consent)

APPENDIX C: INTERVIEW SCRIPT & QUALITATIVE INTERVIEW QUESTIONS

Administered By: Ruth Little, Doctoral Candidate, Higher Education Leadership

Evaluated By: Ruth Little, Doctoral Candidate, Higher Education Leadership

Interview Purpose: As a public health leader, the purpose of the interview is to determine your perceptions and values regarding the DrPH and PhD in public health.

Script

Recording will begin now

Greetings: Good Morning/Afternoon Participant Salutation/Name. My name is Ruth Little and I am a doctoral student in higher education leadership at East Carolina University. My dissertation title is "Evidence Regarding the Value of the DrPH & PhD in Public Health. You were selected for interview because of your position, education and experience as a recognized leader in public health. This interview will only last approximately one hour and will help us learn more about public health leaders' education, experience and value towards the DrPH & PhD in Public Health. Your name will not be disclosed and information provided by you will be reported in a manner that is not identifiable.

This interview is voluntary. If you do wish to participate, you can end this interview at any time. You do not have to answer any questions you do not want to. The interview will be recorded and transcribed. A summary of your response themes will be sent to you to ensure accuracy of reporting.

If you have questions about this interview, please stop me so that I may answer your questions. I also want to assure you have my contact information if you have questions after the phone interview is completed. My email address is littlena@ecu.edu and my phone number is 252-744-3123.

If I have your permission, let me begin by asking……..

1. I am interested in knowing about your terminal degree. Can you describe how you selected that particular degree? In your view, how has the degree helped/not helped your achieve your leadership role. Would other degrees have also been helpful? How so/why not?

2. I am now interested in the leadership role that you now hold. Can you describe how if at all your degree has influenced your ability to provide leadership? Any thoughts on if an alternative degree might have also been influential in providing leadership? How so?
3. Currently there are two terminal degrees offered in Public Health—DrPH and PhD. Tell me your perception about the value of these two terminal degrees. Will the value of these two degrees remain as it is now or change… if so, how? Does the type of degree held by a future leader in your organization matter? How so.

APPENDIX D: IRB APPROVAL

Notification of Amendment Approval

From:	Social/Behavioral IRB
To:	Ruth Little
CC:	Maria Clay
Date:	12/20/2013
Re:	Ame1_UMCIRB 13-002683 UMCIRB 13-002683 Evidence Regarding the Value of DrPH and PhD in Public Health

Your Amendment has been reviewed and approved using expedited review for the period of 12/20/2013 to 12/16/2014. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration.The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
Little Dissertation Structured Interview Questions(0.02)	Interview/Focus Group Scripts/Questions

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX E: LETTER FROM EXTERNAL AUDITOR

May 20, 2014

Dissertation Committee
College of Education
Co-Chairs: Cheryl McFadden, EdD and Maria Clay, PhD

Re: Ruth Little, EdD Candidate

Drs. McFadden and Clay:

Thank you for the opportunity to serve as auditor for the mixed methods research conducted by Ms. Ruth Little, EdD Candidate. During the auditing process, I met with Dr. Clay and Ms. Little on multiple occasions to discuss the research design, giving special attention to the qualitative portion of the data collection, organization, and analysis. Ms. Little had three distinct leadership samples for her research: deans of schools of public health, state health directors, and administrators of public health organizations. Ms. Little chose an exhaustive iterative format for collection of information regarding the published professional data available on Internet websites about her individual samples. She used a hermeneutic approach to extracting information associated with her research questions. This information was reviewed and found to be appropriate. It was noted that it did not yield 100% of the information for all variable sets.

Another collection process included semi-structured informal phone interviews that were tape recorded and reviewed by the auditor. (It is noted that one interview failed to tape and in this instance, notes were taken and reviewed.) Ms. Little used triangulation to increase the trustworthiness of her data analysis. First, she reviewed each tape or transcript and then she reviewed it a second time to take notes. A second coder reviewed the tapes and transcripts and took notes; finally, the auditor reviewed the process as a third coder. Ms. Little developed the codes into categories then sub-thematic patterns through an iterative process of deconstruction and then settled on the major themes, determining structured patterns from the coded data that supported the themes. Meeting with her second coder, themes and patterns were refined into a constructed meaning.

It has been a distinct honor to audit this study. According to scholars of qualitative traditions the research process was clearly defined, conducted with integrity, and provides trustworthiness in the mechanisms of data collection, coding, use of manifest and latent content, and allows transferability given the presentation of appropriate quotations in the findings.

Regards,
Annette G. Greer, PhD, MSN, RN